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Bees in Relation to Pear Blight

By Leonard H. Day
University of California

REGARDING the role of bees in spreading fireblight, considerable controversy has been created by a recent article on the subject by Dr. Rosen (1) in Arkansas. In this article he reports that he has found the bacteria on bees in the hives, in the early spring, before any blossom blight has occurred.

Dr. Rosen is doing a fine piece of research work on fireblight as it exists under conditions in the Ozark Mountains, but I do feel that he should have been more guarded in expressing his opinion regarding the role of bees in the "gradual extinction of the pear industry in America."

Rosen does not claim, however, to have proven beyond question that bees are the chief source of winter holdover of the blight bacteria, and he points out that, "As a matter of caution it should be noted that even if the present findings will be duplicated in different parts of the country this does not mean that bees can be dispensed with."

In California the winter and spring condition of blight is considerably different from what Rosen reports it to be in the Ozarks.

The findings of J. H. Merrill (2) in Kansas that certain plant lice lay their eggs on the bark, and that the young on hatching in the spring crawl over oozing holdover cankers and carry blight to the blossoms and twigs above, and the work of other investigators east of the Rocky Mountains, indicates that many species of insects assist in spreading blight, and also that rain is a very important factor.

That bees can carry the blight bacteria from diseased to healthy blossoms there would seem to be no doubt. But as far as I know, no one has ever proven that bees are a very serious factor in blight epidemics. There is much conjecture, but no accurate data.

The writer has had experience with fireblight in pears in California for some twenty-five years, and during the past ten years it has been his major problem in connection with the California Agricultural Experiment Station. My work has not been in connection with the laboratory study of the bacteria, but almost entirely with improvements in surgical and chemical treatments of blight cankers on the large branches, trunks and roots of pear trees. My opinions regarding bees and blight in California are the result of observations rather than of any statistical study,

I have been much interested in the observations and experiments of Gossard and Walton in Ohio—work done about fifteen years ago and published in 1922 (3). I quote at random the following paragraphs from their bulletin: "We have never known an orchardist who keeps plenty of bees that does not constantly and consistently secure as large or larger crops of fruit than his neighbor who keeps no bees, provided that other things relating to the orchards are equal; and we have seen no more, if as much, blight in the orchards of beekeepers as in those of non-keepers of bees." "We proved that blossoms which have been pollinated for 72 hours are not likely to be inoculated with fireblight and that susceptibility to inoculation does not exist in blossoms that have been pollinated for 144 hours." They infer from this that "numerous honeybees in an orchard to fertilize the blossoms as soon as they are open will insure a crop of fruit by putting the early blossoms past susceptibility to blight before the disease is generally diffused over the orchard." "Early in the investigation we recognized that the relation of bees to spread of blight might hinge wholly on the effect of pollination. If a fertilized blossom was less susceptible to blight than an unfertilized one, the bees, by effecting early pollination, might on the whole be restricting the development of blight even while many of them were scattering it."

As far as I am aware, there has been no accurate checking up on this phase of the work of Gossard and Walton in other parts of the country where conditions may be different and especially where the pear is the chief fruit affected, as in California. I suspect that pollinated blossoms could be inoculated by punctures of insects, and this may be an important phase of the epidemic at times.

There is need of extensive investigation of bees in relation to fireblight. If it is true that bees tend to restrict the spread of blight epidemics instead of assisting to spread them, then fruit growers should import bees for both pollination and disease control. But a matter of this kind is very difficult to prove. One would think that, if bees were responsible to any serious extent in producing epidemics of blight, the evidence would be so plain that there would be no room for doubt on this point, for this matter has been under observation for nearly forty years—since Waite first announced that bees can carry blight.

Personally, I am not much impressed with the idea that honeybees are a very important agency of spread of fireblight in California. We have not found that pear orchards near apiaries are affected by blossom blight any more severely than are orchards farther away, but still in the feeding range of the bees. Sometimes it is the nearer orchard that is more severely affected, and as often it is the farther orchard. Occasionally an orchardist has claimed that he had an increase of blight on introducing bees for pollination purposes, but I am inclined to believe

1. Science, Vol. 72, page 301, September 19, 1930.
2. Journal of Economic Entomology, Vol. 10, page 45, 1917.
3. Ohio Agricultural Experiment Station Bulletin No. 357.

that the bees had nothing to do with the increase. In one case the grower had strung the hives along a low area which ran diagonally through his orchard, and he pointed out to me the greater severity of the disease along that path. He was off with bees for good! Six or eight years later his chief blight operator, who had been with him over twenty years, told me that the blight had always been more severe along that low area. It is human nature, of course, for a grower to be alarmed at anything that might possibly take away the profits of his labors.

A number of other suspected cases of bees spreading blight in California, it seems to the writer, have been the result of fear or prejudice. In some cases growers argue that they are getting sufficiently heavy production of pears without bees, so why take chances with introducing them? In one large pear-growing district the growers have voluntarily taken all the hives from their orchards. They have several varieties interplanted in the orchards for purposes of cross-pollination, but they believe that they have plenty of other insects to effect pollination. The growers of that district became deeply prejudiced against bees several years ago when an epidemic occurred which was particularly severe in a district where bees had been imported from another county in which blight had been severe the previous season. The bees were condemned on circumstantial evidence. There is some question as to whether their Bartlett trees are being sufficiently pollinated, for many of the fruits are reported to be nearly seedless and of poor shape, and to mature and fall to the ground before the whole crop is ready to harvest. However, we are not certain that these latter characteristics are due to lack of pollination in this case.

In the pear orchards of California the disease is carried over the winter by cankers in the bark, some of which, in some years, continue to develop slowly throughout the winter—not becoming completely dormant at any time. If the cankers are below ground or in the trunk, then it would seem that the most likely agencies in carrying the bacteria up to the blossoms would be insects. Bees have never been reported as seen feeding on the ooze from cankers at any time of year; however, I have seen ants, wasps, flies, click beetles and many other insects so feeding—and the bacteria have been found by several investigators on the mouth-parts of these insects. There may be other sources of winter holdover in California, of which we have no knowledge.

I have observed, many times, in the early spring, the spread of blight

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Hints to Beginners in Beekeeping

By I. W. Cameron
California

"IS it possible for an amateur in the bee industry to make a thousand dollars in one season, with an investment of four hundred dollars?"

Such is the substance of a letter from an aspirant who has written for advice from Los Angeles to our county headquarters and to me in particular.

Like the majority of the uninitiated, this writer assumes that conditions and incomes are standard and stabilized, whereas there is hardly to be found an industry more at the mercy of annual fluctuations subject to "variableness and shadows of turnin'" than the bee business.

Therefore, to compass the range of possibilities, the answer would be that with such amount of capital on draught, even a professional might easily make more than a thousand dollars or he might lose his cash and realize nothing for his labor. Prospects in southern California are at best a gamble.

I replied, instead, in a way to encourage this enquirer, while trying to show him the risks in a fair way. To him and others contemplating a plunge into an untried field I would say that the chances for success are sufficient to induce me to enter and stay in the game, but one should at least be careful in buying bees and equipment and selecting a location. This is important.

Another question I notice in the man's letter was as to whether his age (48) is a bar to his development in the science of beekeeping. To this I replied "No." For this assurance I drew only upon my own experience. I began after I was ten years older than that, and I have demonstrated that it is possible at that age to begin a career and get, for me, quite satisfactory results.

Experienced bee raisers need no advice from me with regard to necessary precautions and methods of operations. To the unsophisticated I write to say that after a location has been decided upon, the matter of equipment and available bee market come in for consideration. Right here is a wide-open chance for fatal blunders. Prices are not so important as conditions. In these parts, you can buy old colonies of bees in hives for prices ranging from two to six dollars, or thereabout; or a fair-sized apiary already established, having considerable equipment, can be bought sometimes for prices averaging three or four dollars per colony., complete.

As above said, the price may comprise a bargain, or a purchase may prove a liability. It is easy to find some competent bee man or inspector who would charge little or nothing to examine colonies and advise a purchaser as to their condition. If the bees are found clean of disease and sufficiently strong, with enough honey to put them over, the price might prove a big bargain. I know such chances are not infrequent.

Tentatively speaking, with an apiary in view, or scattered colonies picked up to constitute a "start" of say thirty or forty stands, and a location in the vicinity of plenty of native nectar-yielding flora, secured by lease or otherwise, the amateur is prepared to win, insofar as bee man foresight can make ready. And he may not have invested much above $100 cash, and less than half his time so employed.

There are many succeeding details to be learned that will come along as the season advances, which require assistance from a capable instructor. The apt learner can gain such information while having actual experience. Friends in the neighborhood will enjoy helping the amateur in this way. With even this small a beginning, under favorable climatic conditions, I believe it to be possible to produce a thousand-dollar crop in a single season.

It should be kept in mind that the operator is not capable of teaching and training the bees, but should himself be the student to learn the habits and natural processes of his little servants, which never change. To get results, one should try to clear the way so that Nature can take its course, by the removal of obstacles and providing for the comfort of the colony. I insist that a prime necessity, if success is expected, is that the operator should possess a keen sentimental interest akin to infatuation for his bees. He should have a calm temperament, not given to sudden impulses, not even in slapping at a bee which tries to "park" on him in an aggressive manner.

After all is said and done, we must be prepared for freak seasons, when the wisest counsels and best care fail to overcome Nature's own delinquency. If space would permit, I would suggest many items helpful to a beginner, in the way of equipment, catching swarms, etc. If such further help is desired, tell your editor.

(Read at California convention, San Diego, December 13.)

"Stick to the Bees"—Look Ahead With Confidence

Here is one Iowa beekeeper who looks to the future with confidence. It is refreshing to know that, for many, beekeeping remains promising in the midst of adversity.

By Frank C. Pellett

ED BROWN is an optimist. In the nearly twenty years that I have known him, I cannot recall a time when he felt any doubt about the future of honey production. In that time there have been large crops and small crops, high prices and low prices, but always his attitude has been the same. His motto has been, "Stick to the bees and they will pull you through."

This attitude is probably due in part to his father's influence, for Brown was reared in a beekeeping atmosphere. The elder Brown engaged in beekeeping at about the time that Ed was born, and as time went on bees became of increasing importance on the Brown farm. When young Edward was sixteen he was given the principal care of about five hundred colonies, and from that day to this he has been seriously engaged in the business of honey production. There have been plenty of ups and downs in that time. Sometimes the downs have seemed unusually frequent.

When Ed was twenty-two his father died. Before he passed on he said to his son, "Stick to the bees. They have pulled the farm out of the hole on several occasions, but only once has it been necessary for other crops to come to the assistance of the bees."

Ed stuck, but he had a pretty severe test, for foulbrood soon appeared. Being young and unacquainted with that disease, it was widespread before he realized what he had to deal with. His five hundred colonies were reduced to thirty-four before he had secured the upper hand. Slowly he rebuilt his apiaries while he carried on the management of the farm. In 1913 he decided to give up farming and stake everything with the bees. From that day to this beekeeping has been a specialty rather than a sideline.

The Brown home is in the country just south of Sioux City, Iowa, in the sweet clover belt. It is good beekeeping country and large crops are the rule. Less than one hundred pounds of surplus honey per colony is regarded as a disappointing crop in that neighborhood. With five hundred or more colonies of bees, there is a substantial amount of honey to market in a good season. The commercial honey producers of that vicinity long ago began to look for some means of finding a market independent of the uncertain means then available. In 1906 Brown was one of a group of local beekeepers who organized an association known as Western Honey Producers. Thomas Chantry and W. P. Southworth were active in this enterprise. Southworth continued as active manager for many years and found an outlet for hundreds of cars of honey every year.

Later, Brown, Couts, Engle, Williamson and others organized another cooperative marketing agency, known as Sioux Honey Association, which has since taken over the former association also. Brown is at present president of this organization The fact is that Ed Brown has been closely connected with the development of organized movements for furthering beekeeping in Iowa. He was one of the group present when the State Beekeepers' Association was formed and has since held office in that organization for a goodly portion of the life of the organization. Just now he is vice-president and chairman of such important committees as the legislative and fair committees. He is also a director of the American Honey Institute and one of its most active supporters.

In these times of depression, when so many men are complaining that everything has gone wrong, it is refreshing to find a man who still looks forward with confidence to the future of our industry. Brown has done well with bees, or perhaps it might be said that the bees have done well by Ed Brown.

A few months ago it was my privilege to call at the Brown home and to visit some of the outyards. There are now about five yards with approximately one thousand hives of bees. Nineteen thirty-one was a short season as far as crop was concerned, and this is a time of low prices for all food products. Still we find Brown as optimistic as of old, when crops were large and prices ruled high. With a background of many years of farm experience, he declares that with honey at 5 cents per pound in car lots he can still make as much money from bees as from any other farm crops. Having tried both general farming and dairying, he has a good basis of comparison. In computing the returns from any enterprise it is necessary to include interest on investment and depreciation of equipment along with labor costs. When all these things are considered, he concludes that bees will make fully as good a showing as any other rural activity.

After all, the thing that counts is the average return for the long pull. The good years averaged with the poor ones tell the story of any enterprise. With no other important source of income, Brown knows that bees have done well by him. They have raised his family, sent the children

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Apiary of Ed Brown, near Sioux City, Iowa.

Some Load

A writer in a recent magazine estimates that the accumulated debt which resulted from the World War and the boom which followed amounts to about $2,000, each, for every citizen of this country. Not only have we accumulated a gigantic public debt as a nation, but every state, every county and every city is bonded to the limit. The public officials who have kept their heads and avoided public debts are rare exceptions.

Now we find ourselves in the position of wondering who is to pay the fiddlers since the party is over. There seems to be no other prospect but a long period of hard work and careful saving to discharge this enormous debt. Every one of us must make a contribution, whether or not we own property. We must work to pay the war debts and at the same time pay debts contracted for roads and schools and numerous other improvements. Numerous small towns have been unable to pay interest on their obligations and some big cities, and even some states, are finding it exceedingly difficult. Each of us must expect to forego many things which we would normally expect to have, because of the fact that $2,000 of public debt hangs over each one. The boom was great while it lasted, but it is no longer pleasant when we discover that our so-called prosperity came through spending borrowed money, which we must now repay.

The man who has always been strong for every bond issue because he owned no property and thought that he would not share in the payment now finds that the money which goes to pay taxes cannot be used by employers to provide jobs or to buy equipment to increase the output of their plant. We all pay whether we wish to or not.

Spring Is Coming

Spring is not far distant, and in view of the present gloomy atmosphere it is a welcome thought. Everybody seems to have forgotten everything that is pleasant. Wherever a group of men assemble they talk only of gloom, depression, hard times, unemployment, high taxes, low prices and general discomfort.

Fortunately for the beekeeper the environment in which he works is a happy one. Soon the flowers will be blooming, the bees will be bringing in pollen, and brood rearing will be progressing. When one works among the bees he finds himself in a pleasant mood. The coming and going of the bees in the sunshine tends to stimulate one and to cheer his outlook. There is no place in the world where one can forget his troubles quicker than in the bee yard. Happy is the lot of the beekeeper.

Fifty Years

At the threshold of a new year the writer has amused himself by looking through the files of the bee magazines of fifty years ago. The subjects discussed are very similar to those which hold our interest today, but the writers of that time have about all passed off the stage. Henry Alley and G. M. Doolittle, the most prominent queen breeders of that day were much in evidence. Doolittle was a voluminous writer and his articles appeared very frequently. Alley did not write so much, but his name was quite familiar to the readers of the bee magazines of 1882. W. Z. Hutchinson, James Heddon, Elisha Gallup, G. W. Demaree and Charles F. Muth are all well remembered even today. Charles Dadant, Dr. C. C. Miller and A. I. Root were among the most prominent contributors to the literature of that period. All these men contributed much to the development of the industry, which was then in its commercial infancy.

Among the subjects up for frequent consideration were: "How Far Bees Fly for Honey," "Cellar Wintering," "Spring Dwindling," "Races of Bees," and "Bee Stings for Rheumatism." There was a great deal of interest in plants which yield honey, far more than today. Diseasse also came in for frequent mention, although far less space was given to it than now.

In reading over these old magazines one must conclude that, while we have developed some new equipment which lightened our labor, we are really not far in advance of these men, whose names will long be remembered in the history of the development of our craft. From time to time we revive the same old subjects which they discussed and offer the same time-worn arguments in support of our position. A few new facts have come to light, a few controverted questions have been settled, but on the whole we are following very closely the same general path which they trod.

Certainly we are not yet ready to admit that we know all there is to know about bees. We must conclude, however, that we of today have a different viewpoint than our fathers. They were interested in bees primarily for what they could learn about them. We find in the old magazines but few articles about how to realize the most from the sale of the honey. The commercial angle is dominant now. Selling the honey, securing maximum crops and lightening labor are the things that we want to talk about.

Chickens Come Home to Roost

In the old bee magazines there are numerous complaints about the high-handed methods of the railroads. For many years these public servants were in the hands of men accustomed to having their own way and who had but little regard for the rights of the public. The "public be damned" policy continued until the outraged patrons would stand it no longer. Law after law was passed restricting the railroads, until we now find the shoe on the other foot. We have gone to the other extreme and placed so many restrictions about the railroads that they are unable to manage their own business without the supervision of numerous commissions which decide what rates they may charge, how much they must pay their labor and how many trains they must run. Taxes which are almost unbearable have been charged against them until even the strongest are at times threatened with bankruptcy. The old saying that "Chickens come home to roost" is certainly vindicated in the case of the railroads.

Railroads, however, are essential to the prosperity of every class, and especially to agriculture. It would seem that they have suffered enough for the sins of the past and that some of the extreme restrictions might well be relaxed to give them a new lease of life.

Watch Your Stores

Up to the time this is written the winter in the Middle West has been the mildest for many years. The bees fly at frequent intervals and there is unusual activity for winter. If such weather continues, brood rearing will begin unusually early and some colonies are likely to be short of stores. The beekeeper should watch carefully to make sure that he does not lose his bees from starvation in early spring.

With the abundant moisture there is a very good prospect for an abundant honey crop next season. After two years of short crop it is time to expect a change. It is very unfortunate to lose the bees just at the beginning of the season with the harvest just ahead.

The Southern States Conference

The Southern States Conference, which convenes at St. Petersburg, Florida, on the second and third of this month, is the big meeting of the year in the southern states. This is the one bee meeting where the queen breeders and live bee shippers have their day. This group have problems of quite a different nature from those met by the honey producer. They are dealing at long range and must transact their business by mail, with few opportunities of personal meetings with their customers. They must trust to mail and express to carry their goods to the customer, and often suffer from mistakes for which they are in no way responsible. It is fortunate that this organization gives them an opportunity to get together once each year and compare notes and discuss their difficulties. The development of demand for live bees in orchard pollination and now for greenhouse use indicates a good future for the package business.

What Is Ahead?

Beekeepers, like others, are asking the question, "What is ahead?" During the past year all prophets failed to anticipate the extent of the deflation or the severity of the depression. With prices so low and market demand so slow, there is a general tendency toward pessimism.

Of course, no one can foretell with certainty what lies ahead, and inasmuch as all forecasts have failed recently they may continue to do so. However, we can usually judge the future by the past, and it is probable that the present depression will give way to prosperity in much the same way that similar events have transpired in the past.

There are so many favorable influences at work for the beekeeper just now that we feel more optimistim than for some time. There is a better foreign demand for honey than for some months, there is more enquiry from bakers at home, and far more discussion of honey as an article of table use on the part of the specialists than has ever been the case before. It takes some time to see the full effect of such influences, but there is every reason to believe that good times for the beekeeper are not far distant. The writer makes no claims to prophecy, but at the same time feels very confident that 1932 will show great improvement for our industry.

Natural Food

Mahatma Gandhi in his loin cloth, on his official visit to England, has attracted world-wide attention to his peculiar habits. The goat which he took with him to provide his food won a blue ribbon in an English show.

Columns of space have been given to Gandhi and his use of only natural food. Besides the goat's milk, he is reported as depending mostly on nuts, fruit and honey. It is said that goats have increased greatly in popularity since he came to England. Perhaps there will also be increased interest in baked apples and honey as a result of the large amount of publicity given to his preference for these items in his daily diet.

The tendency to return to a simpler diet should be greatly to the advantage of honey if it receives sufficient notice. The trouble with such movements generally is that they tend to become fads and are unbalanced in their arrangement. Gandhi, by the use of goat's milk, nuts, fruit and honey, provides a fairly well balanced menu. The public seems unable to understand a man of Gandhi's influence and reputation insisting on reducing life to such a simple state. The beekeeper, at least, should profit from the attention which he has received from the press.

Package Bees for 1932

Northern beekeepers are asking, "Shall I use packages this year?" Southern shippers, "What will the demand for packages be?"

The winter has been mild, favorable for outside wintering, but hard on cellar-wintered bees, as they fly out all over the place. Honey is sold and all sorts of plans are being submitted for increase this year, not only from small beekeepers, but from the big ones, who count costs carefully. Some northern beekeepers last fall killed entire apiaries and must buy packages or go out of business. Some united heavily and set aside empty equipment to fill with bees from the South this spring. This of itself should answer the question about the demand for packages. It should be normal at least. Yet there are other things to be considered. Many beekeepers have decided that at the price they are receiving for honey, around 5 cents a pound wholesale, they cannot afford to kill colonies or suffer winter losses. Even if colonies require fifty pounds of honey to carry them from fall until spring, that is only $2.00 worth of honey.

However, the price of packages is lower, so this consideration is greatly offset. Where the beekeeper is not equipped with a satisfactory cellar or cannot be bothered with packing, he is taking the package route to replacement.

The results to be expected from package bees have been found to be so satisfactory that there is no longer any hesitation in buying them on this score. Altogether, the package is becoming an ideal means of increase and replacement, and an easy one for the northern beekeeper to use.

That Novel German Package

Dr. Nottbohm and Mr. Griffiths, on page 65, tell how a novel honey package pulled the German industry out of its slump. Could we duplicate that in this country?

According to the article, the German beekeeper has been up against a real problem,—how to secure preference for the home product. A guaranteed German honey with a protective seal has apparently helped considerably in solving it.

There was another effect: the German beekeepers, already rather closely associated, are still more solidified by this common problem. What common problems do we have? So far even the best of our efforts have not brought us very close together.

What Is a Honey Market?

In a North Carolina report we quote from one paragraph: "The only dark spot in the honey industry in this state is the poor market for honey . . . "

Here is a letter from a subscriber in which he says that the honey from his bees was "exchanged for food which his family needed." This is only one of many such reports.

Honey is one of the best articles of direct exchange which comes from the farm, because not everybody has honey and most farmers like it. Others are therefore glad to exchange for honey, potatoes, butter, meat, eggs, poultry. One beekeeper last week, from a neighboring city, came to visit us and told how he had filled his cellar with canned goods and farm produce in exchange for honey. In addition, he sold enough honey to buy coal, pay his rent and keep himself in good condition. For two years he has had no other income than that from about fifty colonies of bees, and yet it supplied him and his wife with all they needed, in addition to what they were able to raise in their own garden.

So, what is a honey market? There is something about our industry beyond the price that can be obtained for honey when it is placed in a tin pail, and it should be stressed as one of the bright spots in spite of the "honey market being poor."

We Can't Stop Now

A friend has just asked this question, "Suppose, from this moment, all the efforts to popularize and increase the use of honey, were to stop. How long would it be until the use of honey would dwindle to insignificance?"

A worth while question. To paraphrase William Wrigley, if our advertising of honey were to stop, the use of it would stop. Yet honey cannot be compared to chewing gum. There is no real demand for chewing gum. The demand has been built and maintained solely by advertising, resulting in one of the largest American business ventures.

Honey, with all its intrinsic value, easily outclasses chewing gum. It should be a food item with large volume, yet we have only just started to tell people the story of honey. The surface has not been scratched; the initial wedge hardly driven. We can't possibly stop now, if honey is to have the place it deserves.

R. W. FROW

An Appreciation of R. W. Frow

By Robert Manley
England

"Die when we may, I want it said of me by those who knew me best, that I always plucked a thistle and planted a flower where I thought a flower would grow." —*Lincoln.*

AMERICAN beekeepers are in the fortunate situation, so far, that they have no first-hand experience of acarine disease, known at first as Isle of Wight disease from the fact that its first appearance was in that island off the south coast of England and from whence it spread steadily and rapidly throughout the British Isles.

At the period of its first appearance the swift and complete destruction of stocks of bees attacked was one of the most remarkable phenomena imaginable. A colony would frequently be strong and apparently healthy and rapidly filling supers with honey, when the beekeeper would suddenly notice a few bees crawling around in front of the hive, unable to fly. In some cases, within a week or ten days, virtually every bee in the hive would be dead and the ground all about would be covered with them. Supers would be left full of honey, but empty of bees. Such complete devastation must be rare in connection with any disease. Whole apiaries were rapidly wiped out. And for years no one had the vaguest idea of the cause of this wholesale destruction.

The rapidity of death of the colonies affected has never, since the first outbreak, been so rapid, and many beekeepers believe that there must have been some complication with some other disease in those early days which, combining with the now known casual agent of acarine disease, was responsible for the great virulence of the pestilence then known as Isle of Wight disease. It is scientifically a very great misfortune that out of the millions of bees that died at that time, so far as known, no specimens of were preserved by those who were investigating the disease and no one will now ever know for certain whether this was so or not.

In 1920 an investigation committee with the late Dr. John Rennie at its head made the discovery that a tracheal parasite of minute proportions, one of the Acari, or mites, was responsible for the death of the greater part at least of those colonies which died of symptoms known as Isle of Wight disease, and gave us the means of attempting to find a method of cure in the direction of destroying these mites, and so exterminating the disease at its source. This discovery was the most important one made in modern times in the field of beekeeping, with the single exception of that made by the subject of this article seven years later.

Richard W. Frow (pronounced like "show") was born on July 31, 1887. He began to keep bees in 1918 with a couple of swarms that he received as a gift and, like all real beekeepers, quickly became an enthusiast. He was scarcely started with his swarms when they were wiped out by Isle of Wight disease. In 1919 and in 1920 Mr. Frow made repeated attempts to set up an apiary only to have his colonies destroyed by the plague as before. In 1921 he commenced to use a microscope and educated himself in that art as well as in the use of the dissecting microscope, and was then in the position to begin his long and eventually completely successful attempt to discover a means of destroying the acari within the bees, together with their eggs and larvæ, without injury to the bees.

Mr. Frow was continually experimenting with various drugs that were being recommended, as well as with others that appeared to him likely to be useful. It was on October 14, 1927, after examining, under the microscope, bees from a colony he had treated with his now famous mixture of safrol, nitrobenzene and gasoline that he felt convinced that he had at last hit upon a reliable remedy. He at once communicated with the research committee at Aberdeen University, who, after they had made the necessary examination, fully confirmed Mr. Frow in his belief that, at last, a real remedy had been found, and, though there have been many doubts and failures through the inevitable lack of sufficient experience in the method of using his mixture, the fact is now fully established that, when the drug is correctly applied in the right quantities and at suitable times, it constitutes a definite, safe and sure method of exterminating the casual agent of this destructive disease, Acarapis Woodi.

In order to gather a full appreciation of the work of R. W. Frow, it is necessary to visualize the position of beekeepers in the British Isles

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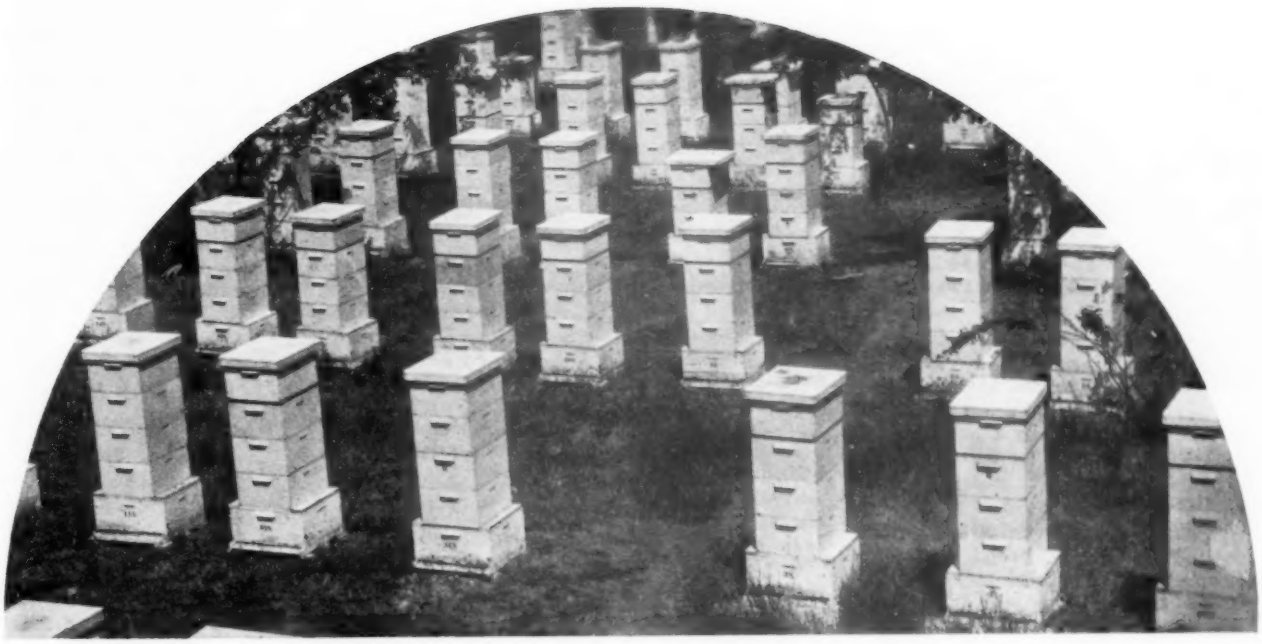


Three hundred double colonies which averaged 400 pounds each in 1929. One hundred colonies, managed the same way in 1925, made an average of 440 pounds each, every comb drawn from a full sheet of foundation and all one hundred from packages received on May 10.

The Lawrence Two-Queen System

By "Observer"

WHY is it that few people have made a success of producing honey, on a considerable scale, using two queens in one hive, as has been done by Sam Lawrence, in South Dakota? Recently "Observer" studied this stystem and believes he has found some of the difficulties, although he is not ready to say the plan will work everywhere or that it is advisable except in places where every effort must be made to build up the colonies to full storing strength in time for the main honey-flow.•

Two-queen colonies are sometimes used by beekeepers in queen-rearing, calling for a hive long enough to take three Langstroth eight-frame supers on top, with two division boards of queen excluding metal dividing the hive into eight-frame chambers with entrances at the ends.

On either side of the long hive is a queenright colony. The middle division is filled with combs of honey. Extra brood is placed in a super above this central part. Two frames of unsealed brood are used in the center of this super between which to place grafted cells. A Doolittle feeder is used also unless honey is coming in.

The two queens and working forces keep up plenty of bees and furnish plenty of young brood, which may be swapped with the combs of emerging brood from above. Supers may be given over the queenright ends if needed.

There is no good reason why this method may not also be used to produce honey, much as Lawrence does in his system. I have heard of no one who uses it extensively for this purpose.

The Mechanics of the Lawrence Hive

First, let us study the hive which Lawrence uses in the 400-hive apiary, using his two queen system. The hives are wider than the ten-frame, containing seven frames on each side of a solid division board in the center. This division board extends to the bottom board, which is stapled on, and when a wood and wire queen excluder is placed on the top center the two sides of the hive are entirely separated, as far as the queens are concerned. To aid further in keeping each queen on her own side, a four-inch block is placed in the middle of the entrance, separating the entrances at each side by this much. The bottom board has ⅜-inch cleats. At the rear of the bottom board are two removable cleats, one for each side, which may be removed to make rear entrances for nuclei or when using Boardman feeders.

Since these hives are wider than the ten-frame super used on top of the queen excluder, supplementary covers (merely narrow ⅞-inch boards) are placed at each side of the super on top of the brood chamber, as may plainly be seen in the pictures. Wider supplementary covers are also provided so, if desired, the ten-frame super may be shifted to one side of the brood chamber and a wide nucleus used at the other side; or the super may be left in the middle and a two- or three-frame nucleus made at one or both sides of the brood chamber by inserting solid division boards directly under the edges of the ten-frame supers.

New bee escape holes are cut in the inner cover (ten-frame size) so both sides of the hive may be fed at once. These holes are covered by substantial wooden covers, sliding beneath hive staples, and may be partially opened in summer for ventilation. Only in hot weather is ventilation given by placing blocks under the inner cover. Hives are never staggered and only the ⅜-inch entrance is ever used.

Behavior Principles Involved

Two principles in bee behavior are important for success with this system: (1) The queen is never pushed to her full laying capacity, and therefore does not reach that resting period which often results in supersedure or in swarming; (2) With but seven frames in each brood chamber, they will be kept free from honey and pollen and the queen will not be crowded.

These two points hold the secret of success, because with the queen laying moderately in a brood chamber that is not crowded, we have the best possible conditions for storing honey.

It is well known that swarming and the cessation of storing follows the

appearance of unbalanced conditions within the hive. The two-queen system, with its double brood chamber, prevents this unbalance because of the two things just mentioned. Each queen, never having more than seven frames, is never pushed in laying, does not lay to her full capacity, does not reach the maximum and then diminish. In ordinary practice, the queen goes to her limit, reaches a resting period, after which she is superseded or the colony swarms.

With but seven frames, little pollen or honey can be stored in the brood chamber until fall. There is not room enough to start storing there at the beginning of the flow and, after storing in the supers is established, it goes on merrily while the seven frames are still left free for the queen.

Thus the seven frames are almost continually full of brood and the bees are not permitted to crowd the queen. The average, in hive after hive, in the two small brood chambers, at the peak of brood rearing at the end of July, was thirteen and one-half frames of brood per hive.

This results in a force of bees large enough to occupy the supers at once—before enough bees to do so could be reared in one ten-frame brood chamber, or even in a two-story brood chamber.

Since the queen does not reach a resting period and honey is not stored in the brood chamber, the bees enter supers quickly, even more so because of the large force of bees supplied from the combined brood chambers below.

In these hives there is little burr-comb, which may be accounted for by the readiness with which bees enter and begin work in the supers. With ordinary practice many burr-combs are usually begun on the top bars and built upward while there are still too few bees to enter the supers. Of course, when insufficient storage space is supplied, burr-combs will be built after the supers are filled, but the quick occupying of supers in the Lawrence system minimizes burr-combs.

The Practice of the Two-Queen System

Two good laying queens must be maintained in the double hive for good results. When starting the hives, both queens must be well established separately, in their own ends of the hive, before a queen excluder and super are put on and the bees allowed to mingle. If one queen has only eggs or little brood, she may be killed. Colonies and queens of uniform quality and strength on each side are essential.

After the queens are well established, the excluder and ten-frame supers are added, just as with a single hive. Lawrence's practice is to place supers of foundation next to the brood chamber, then partly filled or filled supers above, with a super of empty combs on top for overflow.

They are left this way until fall, when the bees of each part must be confined to their own side, or one queen will be killed during winter, or during a long dearth, or any time in fall or spring when the bees form separate clusters. But when the supers are on in the summer the queens may be interchanged without trouble, being acceptable to the bees on either side.

Wintering

The tendency is to winter next to the partition and to start brood rearing in the spring at that point. In the fall the seven frames on each side must be fed full of honey or syrup, and even that is not enough—more will be needed in the spring. But as the bees are wintered in the cellar, these additional stores can usually be supplied after the bees are set out. Spring feeding out doors is practiced in this apiary of four hundred colonies.

In a locality where bees may be reared early in the spring, it might be well to withdraw the partition in the fall and, with only one queen, let the fourteen frames be filled with honey, but in Dakota, where early queens must be bought, much trouble is caused by superseding.

Trouble Shooting

Much loss from poor queens and supersedure results from queens which are bought alone or in packages. Nevertheless, one hundred of these double colonies, started on May 10, from packages, built out every comb from full sheets of foundation and produced as much as 440 pounds per colony, the whole apiary averaging 400 pounds. (That's correct; we were there, too.—Editor.)

Almost all swarms that come from these double hives are from colonies which have lost one queen. When poor queens show, as in package bees, and one side of the hive is to be requeened, and the use of both old queens continued at the same time, one queen may be put above the excluder, the middle partition removed, two side partitions put in, leaving the other old queen in the middle space under the super.

Meanwhile, a cell may be placed on each side nucleus, with entrance given at the back by removing the loose strip of the bottom board cleat, and two new queens mated.

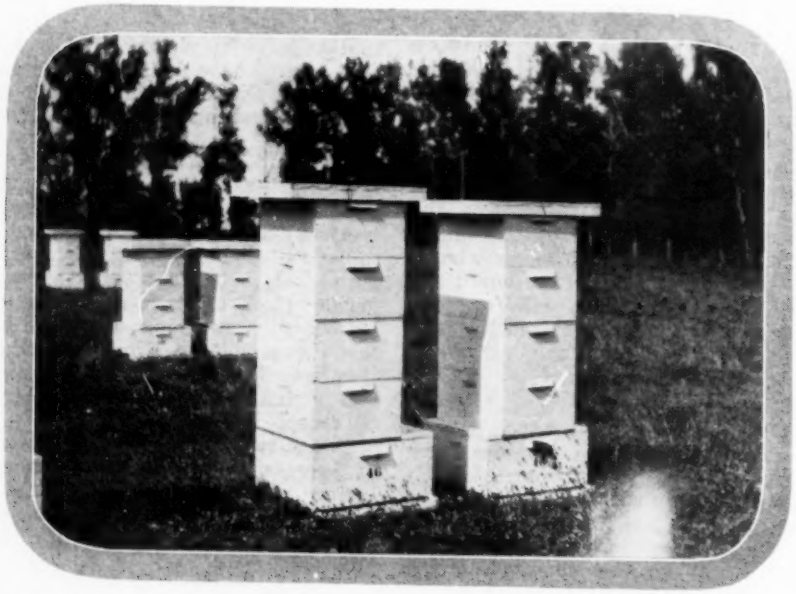
When they are mated and have considerable brood, one or both of the old queens may be removed, either the one below or the one above, and the young queens introduced after replacing the center partition. If both of the young queens are not wanted, one may be used elsewhere.

These nuclei may be examined and a frame removed at any time to see if the queen is laying, by removing the supplementary cover at that side, without lifting any supers or disturbing the rest of the hive.

Two or three frames are usually used in these side nuclei, but if a larger nucleus is desired the super may be moved to one side of the hive and only one nucleus used with a wider supplementary cover.

When a queen is mated in one of these side nuclei and is to be introduced into the adjoining brood chamber, the division board is withdrawn, a folded newspaper is shoved down in its place and folded over the two

(Turn to page 76)



The left hive above shows how the supers may be used over either end of the Lawrence hive

A Fine Trip to Europe

DR. E. F. PHILLIPS

Dr. E. F. Phillips, of Cornell, is sailing for Europe, with Mrs. Phillips, February 4. They are going to tour Europe in their car, visiting the leading beekeepers of Europe. They will spend six weeks in Germany, go to Vienna and other places in Austria, then to Czechoslovakia, where Dr. Soudek will accompany them for another three weeks.

They will then go back to Berlin and from there take the train for Russia, where they expect to spend another six weeks, going as far as the Black Sea and the Caucasus. Then they will go to Copenhagen, where Dr. Bahr will accompany them through that interesting country.

Then they will go to Hamburg and up the Rhine Valley, and from there to Budapest, where Feldmarshall von Matyas, who is writing a book on beehives, will serve as their guide. They will then cross to Switzerland and from there return to Paris in time for the international beekeepers' meeting of July 1.

They will then go to southern France, Italy, Belgium and the Netherlands, accompanied by our old acquaintance, Baldensperger.

Don't you wish you could go along?

Who Eats Honey, and How Much?

The question is often asked, "How much honey do beekeepers and their families consume?" and the writer is moved to get some figures on the subject. He has eaten at the homes of numerous beekeepers on whose tables honey seldom appears, unless they have a guest who talks of honey, and he has been surprised at the number of banquets of beekeepers at which honey was not served. And he asks, "Why is this?"

In an endeavor to ascertain how much honey beekeepers and their families actually do use, each beekeeper who reads this is asked to write out his answers to the following questions and send his reply to Box —, in care of the bee journal in which he reads it. If a reply is sent to one journal and then the same request is read in another paper, please do not send in a second reply.

1. How many persons are in your family?
2. How many of them eat honey?
3. How many pounds of honey does your family use yearly?

All these answers can go on a post card. You need not copy the questions, but merely write the numbers, as: 1. Four. 2. Three. 3. Seventy-five.

Please answer the same questions for any neighbors of yours that you may have influenced to use honey.

A, Box 932,
American Bee Journal,
Hamilton, Illinois.

Last Call for Government Posters

Word has just been received from the superintendent of documents, Government printing office, Washington, D. C., that the issue of the colored posters, "It's All Good Honey," is almost exhausted, there being but 1,000 copies left. Copies may be obtained at the rate of 15 cents each, or when fifty copies or more are sent to one address the price is 10 cents each.

The superintendent of documents also reports that there are on hand about 4,000 copies of the color charts used in connection with the United States standard grades which illustrate the color requirements of comb honey. The price of these is the same as for the honey posters.

Remittances should be sent in cash or money order direct to the Superintendent of Documents, Government Printing Office, Washington, D. C. Stamps will not be accepted.

James I. Hambleton,
Senior Apiculturist.

Canadian Bank Deposits May Overcome Exchange Situation

A plan is being followed by some of those who ship bees or queens into Canada to avoid the present unfavorable exchange rates between the two countries. The plan is to accept Canadian funds in payment for packages or queens and allow the money to remain in Canada in a well-recommended bank, either as savings or time deposits, until exchange conditions improve.

Naturally, the questions are: What interest could be expected? Would such funds be taxable? And in what bank could they be placed with safety?

No Canadian bank has failed since 1923. All the Canadian banks are under government control, with a branch bank system. There is no tax required, and for funds deposited in an ordinary business account, with checking privilege, the interest is 2 per cent on a minimum monthly balance in excess of $2500.00, or 1½ per cent on daily balance in excess of $2500.00. Canadian banks require a free balance of $2500.00 on ordinary current or checking accounts to cover expense of operation.

If funds are in the savings department, the interest is 3 per cent on minimum balances, no free balance being required.

For the Winnipeg port, the Royal Bank of Canada, Portage Avenue, Winnipeg, is recommended. Checks or money orders on this bank should be endorsed as follows: "Pay to the order of the Royal Bank of Canada, Portage Avenue Branch, Winnipeg."

Last year Manitoba led all the provinces in the amount of money sent South for package bees. Their honey crop is all sold and many are planning an increase. Some have killed their entire apiaries and must buy packages or go out of business. So southern shippers should immediately consider what they are going to do in relation to their Canadian business.

The Gist of the Matter

Parting shots on the December Debate.

By a Few of Those Most Interested

HERE, in as brief form as we can give, are the most interesting of the letters received from the "Open Forum" on disease, in the December number, with articles by M. N. Dillon and Wilbur Sheron. Lively comment of this sort is sometimes hard to shut off. Fortunately, in the present instance, the comment has not been burdensome and the present group of replies is to be the last for some time on this subject.

This style of debate, while open to the criticism of airing opinion perhaps, as one of our critics has kindly stated, was the method by means of which Editor Hutchinson of the "Beekeepers' Review," in Michigan, in the early days succeeded in building one of the most interesting bee publications which has ever appeared in this country.

In attempting to revive this friendly kind of controversy, let us now pass on to other subjects. If you have questions which will bear this handling to the advantage of all our readers, please tell us what you would like to see appear, of major interest to beekeepers.

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CONTROL MEASURES MAY HAVE MUCH TO TEACH US

By DeWitt C. Wing
Formerly Editor "Breeders' Gazette"
New York

I HAVE just read the two articles on foulbrood, both written with lucidity and conviction. I do not profess to be familiar with the history or with the present status of the disease, or with the measures for its control or eradication. But if I were to judge the issue, as presented by the two writers, I would unhesitatingly award the palm to Mr. Sheron. First, upon the technical, economic and social soundness of his facts and viewpoints. Second, on the implication that burning will never rid bees of disease, because all bees cannot be burned.

Control measures will enable beekeepers, who are qualified to apply them, to learn more than is known now about hidden facts which, in bees, both as individuals and as swarms, and in their climatic relationship, bear a definite part in the incidence of disease.

Information, gained through control measures, will be useful as a base of procedure to assist bees in finally overcoming disease by setting up racial immunities. Eventually bees must save themselves, with as much aid as can be given to them by man.

And burning is apparently the wrong way to foster this situation. We certainly aren't getting rid of tuberculosis in cattle or cholera in hogs by killing them. These species will always live with or die of these diseases until they learn how to free themselves from them, and that learning how is almost wholly a racial business and a matter of years.

Botanical science includes many illustrations of the point that the kind of immunity to which I have referred can be and often has been set up by the suffering hosts of microbic diseases.

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HOW ONE INSPECTOR LOOKS AT THINGS

R. M. Baker
Deputy Inspector
Indiana

INSPECTION requires a man with steady nerves and a calm disposition, able to meet things in a fair way. Many stories are told of the things that the inspector does. Few of them are true.

He meets four kinds of beekeepers: Those who work with a well devised plan; those who neglect; those who use everything for their bees, from soap boxes to washing machines; those who do not believe in hives at all because they are not natural.

The inspector must bring all these classes together, so I believe **he should be first an educator;** able to handle many minds in different ways. He should not be hasty, but firm. I believe the inspector's success should be measured by the number of beekeepers he is able to educate to better ways. The unpleasant task of destruction is his last weapon.

Whether we can eliminate disease or not, I am sure we can control it to a low point. We must have the cooperation of the leading beekeepers and not allow bees to be sold or moved without inspection.

I contend that burning should not be directed toward the little beekeeper while the big man has his own way. It is not fair. Also, I do not think it is fair to the little beekeeper to burn him on the first offense. Give him a chance. If he doesn't take advantage of it, then he cannot blame anybody but himself if his bees are burned.

I do not agree either that the beekeeper should stand the loss entirely. We must not forget that the value of bees cannot be measured just by honey. Their value for pollination purposes is probably equal to that.

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DON'T DESTROY THE BEEKEEPER, TOO

By E. W. Puhl
Wisconsin

PURIFICATION by fire is the only remedy for treating American foulbrood. But the question, as I see it, is whether we are going to burn the beekeeper or just the disease.

For instance, in 1930 it was proposed in Wisconsin that all colonies of bees with American foulbrood be burned at once, with the approval of the beekeeper, without demanding the ten days granted by law; that no disease could be treated unless the entire number of colonies be handled at once and isolated under the supervision of the inspector; that honey in these hives be destroyed if the beekeeper knew of its presence, or other-wise be kept off the open market and disposed of not later than six months thereafter; where the percentage of disease exceeds 20 per cent of the number of colonies, after two years, the bees in the entire yard be burned and equipment cleaned; that those wishing to sell or move equipment apply for permit before July 1 or the inspection would be done at the convenience of the department.

To me, it would be as useless as warts on a pickle to enforce these proposals. We overlook the fact that other states ship honey by carloads into our state. Then there is the farmer beekeeper with a few colonies. All he knows is that they make honey. If his bees die from disease he becomes a disease spreader. All city dumping grounds receive honey containers which are dangerous.

I believe in burning, always have and always will, but I believe we should have a uniform law in every state and that beekeepers should be compensated in part for their losses, so that they may buy bees again. For many of us, bees are our only way of making a living. We can't destroy the beekeeper along with the disease.

WE ARE "BURNED" CLEAN

By Leon C. Nieb
Michigan

AS a Michigan beekeeper, I must reply to Mr. Sheron, of Indiana. He thinks if the money and time used destroying bees and equipment were spent in advertising honey, the question of disease would settle itself. American foulbrood has been left to settle itself too long. I do not think that control by burning is a club in the hands of the large producer to curb the efforts of the small beekeeper.

A diseased colony produces little, if any, honey. Here in Michigan our burning law takes care of the bees of the careless man. If it were not for carelessness, bee disease would not be the problem it is.

The only kick I ever heard from a Michigan man was from an old farmer with a couple of colonies that were burned, and this kindly old gentleman didn't know one end of a beehive from the other.

Let me state, too, that the clean area here in our state is certainly due to burning and nothing else.

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EXPERIENCE HAS MADE ME A FIRE WORSHIPER

By C. F. Strahan
Nebraska

BURN or treat. In some places it's like the old man who said, "My wife has made up our minds." In other places we have our choice.

I had mine, so I read everything I could get about treating. I started to treat the cheapest and best way. I saved the bees and in every case it seemed like a success. I found bees diseased late in the fall and shook them on completely sealed combs of honey. They stayed cured. I bought formalin and treated and the combs seemed all right; yet new cases would appear about as fast as disease was cured.

After spending time and money each year, I decided the profits were not in keeping with the expense. It was too expensive to keep the disease under control. We would have to resort to some other method.

We tried shaking the bees, burning the combs and scorching out the hives. This was a little better, but the percentage of infected colonies remained about the same. After about seven years, we realized that the loss was at least equal to the pleasure we were getting from beekeeping.

So we prepared to make a last stand in the front row with the Fireworshipers. Every infected colony when found was quietly closed in the evening after the bees had quit flying, the bees killed, and bees, brood and honey immediately burned and the remains covered. The hive body, cover and bottom board were lightly scorched.

The next year only one case showed up, which I think started the fall before. It was promptly purified by fire.

For two years, now, I have not had a single case. I am only a small beekeeper, and if the large commercial beekeeper wants to put me out of business by having the inspector burn my bees, he is out of luck. The inspector can't burn my bees, because I'll burn them before he does.

American foulbrood may be controlled by treating, but it can be eradicated by burning. Experience, against my wishes, has made me a fireworshiper.

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BE YOUR OWN INSPECTOR

By Observer

IN December Mr. Sheron said it is his opinion American foulbrood can be controlled, but not eradicated. We know it has been eradicated from some apiaries and from some sections both by shaking and by burning.

He also says the public would not permit burning even though they had no interest in bees. Cattle were killed and buried with quicklime to stop foot and mouth disease, most of them not even having had the disease. Is it any more inhuman to destroy bees than cattle? The public permits and approves this course.

I can also say definitely that the large commercial beekeepers do not look on burning as a way to restrict production, but as the only way to insure production. They know that disease is a great hindrance to production in their own apiaries and in the apiaries of other beekeepers, large or small, and that disease removes bees useful and necessary for pollination.

You may paste it in your hat that these commercial beekeepers believe a law requiring colonies with American foulbrood to be burned is the only effective way to eradicate disease and that it will mean more honey at a lower cost in disease-free apiaries.

The burning is just as drastic for the commercial beekeeper as it is for the sideline beekeeper. Either one may save his colonies, if so desired, and have no disease when the inspector comes. He may clean them up any way he wishes, by any method he wishes, but they must have no disease when the inspector sees them.

The fact is that to eradicate American foulbrood requires careful procedure, and many beekeepers, while they do their best, are not careful enough. The sooner beekeepers cease their reluctance to burn infected material, the better off they will be. **The variations of the shaking treatment and the subsequent sterilization of combs have not helped to reduce or eradicate foulbrood.**

The impression seems to be that a burning law empowers the inspector to burn every hive in which American foulbrood is found. This is not true. He is only required to burn infected material. The hives may be saved if the owner wants to save them; frames also, although usually the cost of saving them is more than they are worth.

As evidence of how beekeepers feel, the recent convention of the California Association endorsed the new law which makes burning the inspector's obligation **when he finds disease.** Oregon and Washington associations passed similar resolutions.

These three conventions are representative of small and large beekeepers. In Washington the commercial beekeepers who live in the east of the state voted to hold the convention in Seattle, in the west, so the small beekeepers might be present to present their opinions and objections to that sort of a law.

The fact is that under a burning law any beekeeper can do as much control work or eradication work as he pleases. If he cannot eradicate disease, his colonies with American foulbrood should be burned and he should welcome a law and an inspector who can do it.

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AS ONE EDITOR SEES IT

IT is admittedly a hot discussion, isn't it? "Intolerance" on all sides. That makes it hard for an editor. We have our opinions, too. We have our own bees and we know where we stand on this question. Every one of the editors of the American Bee Journal is a beekeeper in his own right. So this whole thing appeals to us from two points of view — that of editor and that of beekeeper.

The American Bee Journal is read in forty-eight states. We are criticized for printing opinions and not facts. Remember, there are facts whether we discuss control or burning. Whether the individual accepts a point as a fact depends on his experience, and none of us have completed our experience.

The criticism is also offered that nothing should find its way into the pages of a bee journal except unadorned proven facts; that there should be no opinions or discussions unsupported by actual facts; that there should be no theory, no hypothesis. Lord bless us! Practically everything in human life proceeds from theory. Much of human thought is based on conception. As a whole, we have yet accumulated few of the facts that exist.

Admitively, however, American foulbrood is one thing in beekeeping

(Turn to page 72)

Is It Possible?

By George W. Bohne
Louisiana

AN amusing story is told of Deacon Brown, a very good man, who became ill. His physician thought reports on his condition of enough importance to warrant notices to be posted in public places. At last this appeared: "4:00 p. m. — Deacon Brown takes a turn for the worse. 5:00 p. m.—Deacon Brown sinking rapidly. 6:00 p. m.—Deacon Brown dead." Later a wag passed and, after reading, added: "8:00 p. m.—Great excitement in Heaven. Deacon Brown not yet arrived. IS IT POSSIBLE?"

Cecil Lent, on page 563 of the December number, brings us the color question again by saying that "three-fourths of all the honey is white, and so it is only natural that people used to handling honey should call white honey standard."

It is true that three-fourths of all the honey in wholesale trade car lot movement is white. It is also true that every market report shows that there is a large offering of darker honey. The question is, "How much?" There is no reliable report on actual production. The generally accepted figure seems to be about two pounds per capita, or about 20,000,000 gallons. It seems to be impossible to sell this small output without export markets or resorting to ruinous price cutting. So much for white honey.

Down here in Louisiana we make millions of gallons of cane syrup which is amber—and we sell it. A gallons of sorghum—also amber—little further north another million and they sell it. Then up in New York another million gallons of maple syrup—also amber—and they cannot supply the demand. How many other gallons of amber buckwheat honey are produced and sold seems to be a guess. Down in the South we surely sell several million gallons more of our amber "baker stock" honey for table use. I might also add that 95 per cent of all northern packed honey on southern markets is amber.

I recently had a letter from a friend in the northern Mississippi River country stating he found his readiest sales for amber honey that he blended to a uniform color readily duplicated from the production in his territory. I have myself shipped many thousands of gallons of amber honey to semi-northern bottlers, for blending with their "white" honey—probably to add to its appearance and flavor.

It has often appeared to me as if the desperate effort of white honey producers to impress the color factor was a move forced by necessity. Color is such an important factor of attractiveness in food selection that its unconscious application, even by children, seems to be an intuition left from ages when the eye was the main director of diet.

That color indicates food value was first impressed on me by experiments in the biological laboratory. Rats fed on white corn grew slowly and developed poorly, while the same rats fed on yellow corn grew and developed naturally. I have since found the reason was that the white corn contains vitamin A only, while yellow corn contains both vitamin A and B. This may be purely an accident, but let us proceed to another article on page 563 of the December number and see what is reported along the line of honey investigation by Prof. Schuette, of the University of Wisconsin. I quote as follows:

"The nutritive value of honey varies with the color. The color of honey is chiefly formed by the particular flower from which nectar is obtained. Some honeys are more nutritious than others by reason of the amount of copper, iron and manganese found therein (note, these are darkening agents), the percentage depending on the sources of the nectar.

"Prof. Schuette has a collection of various colored honeys from different parts of the country illustrating color value and serving as a basis of experiment. It is interesting to note that, **although the white honeys are often preferred on the market, the darker honeys are considered more healthful.**"

Are we coming to the point when white honey will be utilized in "adulterating" our "more healthful" dark honey? Is it possible?

The Latest Type of Beehive

By W. E. Stepp
Kansas

I have seen kettles, nail kegs, soap boxes, trunks and other things used by bees, but never did I see bees use a hive like the one in this picture. The man that went for his heating stove found it too hot to handle and sent for me to help.

After taking the picture, I got busy with the hive and soon had the bees, combs and honey in it. It took me thirty minutes, without gloves or veil, and never got a sting. Of course, I used plenty of good shavings smoke. Rag smoke only makes bees worse to handle for me, unless you keep the smoke up, but a big fog of shavings smoke bluffs them right at the start and they are nice to handle with a little puff now and then.

There Is Another Bee Disease

By J. H. Baldwin
California

THERE is another bee disease and I desire to drop a word of warning that may help some beekeeper to avoid a loss. For the past five years I have been observing a disease in my colonies that would not answer to the ordinary tests used by the apiarist to classify American, European, sac or pickle brood. Yet the resemblance to American is so strong that the average inspector cannot be blamed for pronouncing it American. I always say burn and give me a clean bill of health. I have always been in favor of burning anything I cannot classify. That all may be able to recognize this ailment at a glance I will give quite a full description.

1. The brood dies at all stages of development, but mostly in the larval stage, when it may be brown or coal black.

2. Cappings light brown and sunken in center funnel shape. If in the pupa stage, light brown with tongue up to top of cell. Not quite as well developed as American foulbrood. Does not stretch as American foulbrood, but slips back in cell, dries up and can be easily removed.

3. Has a pronounced sour smell. Unlike American foulbrood. The bees can and do remove all traces of the disease. But the disease returns.

This latter stage is the condition that confuses the apiarist, the tongue sticking to the top of cell being considered an infallible sign of American foulbrood, fortunately generally destroyed. I consider it a very dangerous disease. I have given a lot of study to this disease and can come to but one conclusion, and that is we have a new disease to contend with.

Why Say Just "Honey"?

By E. F. Lane
California

Recently a lady brought a five-pound pail of extracted honey back to the store from which it was bought, saying "We cannot eat it. It tastes like medicine. They don't have good honey any more."

Examination of the honey proved that it did taste like medicine and was unfit for table use.

A few years ago packers of honey, with experience, would not have attempted to put up such honey. They knew that it would kill the sale.

Some folks like strong-flavored honey, but 99 per cent want it pleasant flavored regardless of color.

It is a mistake to put out a strong, distasteful honey. It hurts the industry. It not only stops the use of that honey, but prevents the sale of good honey.

A distasteful pail of honey will lie around for a year and every time the housewife looks at it adds more to the resistance against buying honey.

Some people have peculiar taste—like the old woman who kissed the cow—and what the average person might think ill-flavored may suit someone else. Yet, on the whole, honey of mild or pleasant flavor is the one which brings back the repeat order.

The dark honeydew honey should never be marketed for table use. In thirty years of observation of packers who bottle and can honey, none of those who are careless are left.

Most recipes say just "honey." Would it not be better to mention did table grades? The itinerant "clover honey" or many of the splen honey peddler has driven more people from using honey, in the main, than he has created honey users.

Here and there an ambitions beekeeper is to blame also, but consistent good quality builds up good-will. Every jar or can of honey that tastes good will further the sale of honey which is suitable for table use.

(Why not call suitable honey "Table grade"?—Editor.)

The Careless Beekeeper

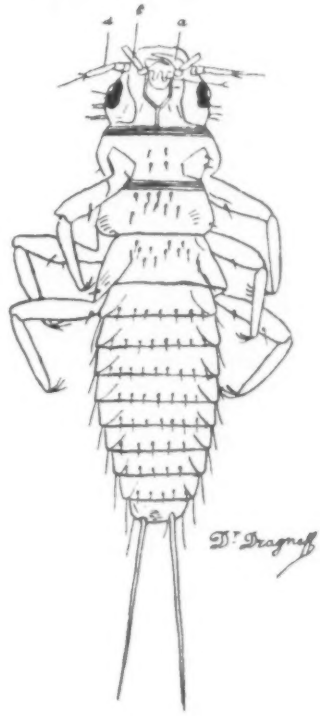
Once there was a man, and he had a mule. This man was also a beekeeper. As a beekeeper he was not of the most careful. One day this careless beekeeper bestrode his mule and started off to get a swarm of bees which a neighbor phoned him was on a tree close to his home.

All went well and the beekeeper soon had the swarm in a sack and was on the mule on his way home. Gradually his arm grew tired holding the sack out so that it did not touch the mule. Well, thought this careless beekeeper, the bees will not sting through the sack anyway. So he let the sack containing the swarm rest against the side of the mule. And still all was well, for a while. Nobody quite knows what happened—whether some bees got out of a small hole through the sack or whether their stingers were long enough to reach through it. Anyway, the bees began to sting that mule on which the careless beekeeper sat, and the rest of it goes like a Mother Goose story, or like one of the supposedly humorous cartoons occasionally seen in the "funnies."

The bees stung the mule; the mule kicked desperately; finally he kicked a guy wire attached to a pole; the repeated kicks made the pole fall down; then a power wire which was on the pole fell on the mule; the mule was instantly electrocuted; then the mule toppled over and fell on the careless beekeeper; the careless beekeeper had several ribs fractured and is now in the hospital.

By Observer.

A New Louse of Bees



Dr. Dragneff, president of the society "Ptchela" at Stara-Zagora, Roumania, has discovered a new bee louse, which he describes in "La Gazette Apicole" of September, 1931. His description occupies four pages of this bee magazine. As he is studying it still further and has sent some samples of them to Dr. Morgenthaler, of Berne, Switzerland, we will not give a full description of this louse until it is further studied. Let us say, however, that it is very small, having a length of 0.7 to 1.5 millimeters.

Dependability of Supply and Uniformity of Product

By W. H. Eastman
Kansas

In some ways the honey marketing problem reminds me of the early day marketing of dairy and poultry products.

Our little family were 1876 settlers in northeast Kansas. In those days we sold dairy and poultry products at a fraction of what is paid now, and the market was uncertain; did not know whether we could sell a rooster for a 5-cent piece or eggs for 3 cents per dozen, or if the grocer would refuse to buy at any price.

Two neighbors of ours each hauled a tubful of eggs some miles to town and were offered 3 cents per dozen. They both "struck." One dumped his in the middle of the road which answered for a street; the other took his home for hog feed. Large corporations have now taken over the marketing of these commodities and they are keeping a dependable supply before the public in all marketing places every day in the year.

Being a farmer on a farm, I prefer a fresh-laid egg to one from cold storage, but we all know the city consumer accepts the storage variety as a matter of course, and the market consumes them in sufficient quantities to dispose of all we can produce at some price.

Likewise, I prefer butter from our old stone churn with the wooden dash to the creamery product, even though the latter is always uniform and sold in a beautiful package.

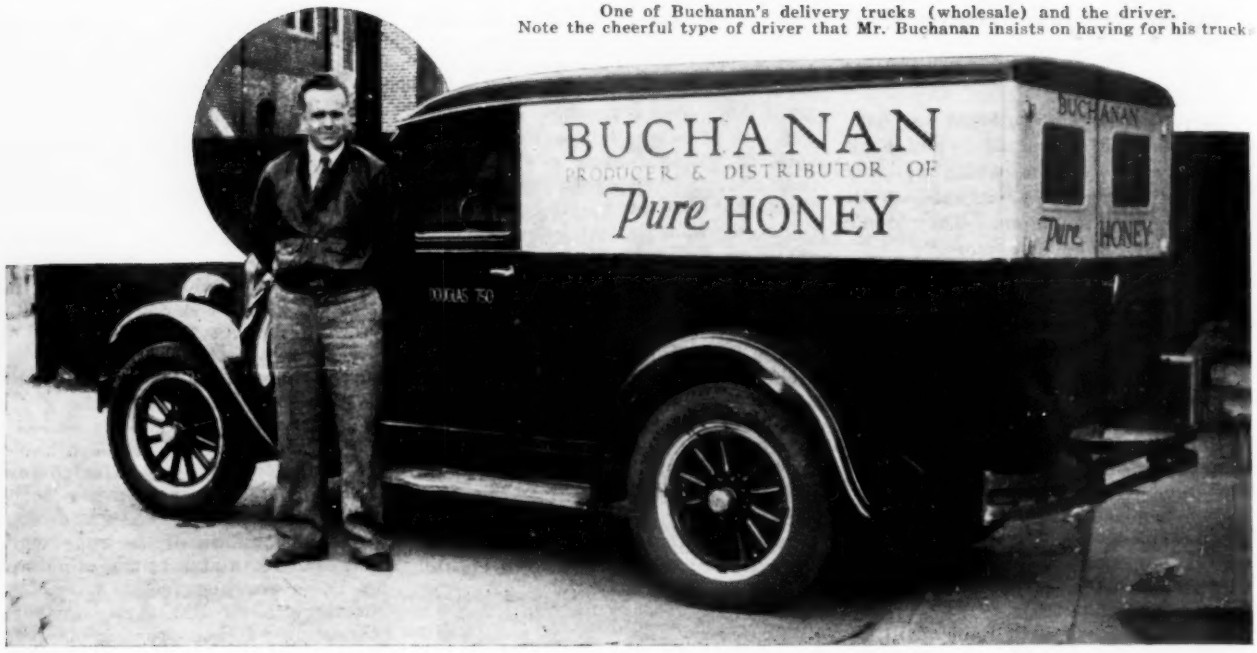
We once prepared some home-made ice cream from our choicest Jersey cream, flavored with pure extracts, for a visiting lad from the city, but he would have none of it. "Not as good," he said, as the factory product with which he was served at home every day. The solution of the dairy and poultry problem appears to have been **dependability of supply and uniformity of product.**

All beekeepers are acknowledging that honey is not uniform, and there seems to be no disposition to make it uniform. A customer may be delighted with his first purchase and disgusted with his next one. Likewise, honey may be on the market one month and disappear for the rest of the year.

Personally, I have no market problem of my own for my small crop, but I sometimes wonder if a corporation would buy and in some manner make the product uniform and put it on the market in a dependable manner, if it would not be beneficial to the business.

There have been farmers' unions ever since I can remember, but practically all dairy and poultry products are, I think, sold under the brand of some large corporation or subsidiary.

One of Buchanan's delivery trucks (wholesale) and the driver.
Note the cheerful type of driver that Mr. Buchanan insists on having for his truck.



Buchanan, World Leader in Sage Honey Production

By J. Edward Tufft
Boulder, Colorado

F. R. BUCHANAN, 242 North Orange Avenue, Glendale, California, unquestionably leads the world in the production of sage honey. In certain years he leads in orange honey as well. Some phases of his production and business methods as he explains them are interesting and should be inspiring to other apiary owners. Figures for the year 1926 proved him far in the lead in sage honey.

Recognizing the fact that "not all sage is sage," Mr. Buchanan, after tramping through every canyon in southern California between San Diego and San Francisco, selected the canyons from which his sage honey must come. From those select spots alone his sage honey does come. For this reason all efforts to take his customers from him are unavailing, regardless of the amount of money or advertising arrayed against him. Apparently Buchanan, through the most painstaking attention to perfect quality, has made himself secure. It takes quality and detailed attention to come up from a small start to a world position in ten or twelve years' time.

Special Trucks for Quick Moving

When Buchanan moves his bees from one part of California to another he moves quickly. Special flat-bed trucks are on hand. Let us say he is moving from an orange region to the Piru Canyon, where his sage fields are and where he leases a large ranch for honey-producing purposes. He can load his bees in thirty minutes and by driving fifty miles per hour make his trip in an hour and a half. The course of the bees' lives, therefore, is not disturbed for more than two and a half hours at the very most when such a jaunt is made. The less you disturb the even tenor of a bee's life, the better—that is Mr. Buchanan's theory.

The Why of Sage Honey and the Why of the Canyon

Mr. Buchanan has gone in strongly for sage honey for several reasons.

Sage honey is a honey that can be used in tea and coffee or for any sweetening purpose, and it **will not granulate.** On the market it will keep its light, clear color for a long time, and will lose nothing of its quality or color when stored in his warehouse.

Since Mr. Buchanan can figure on a good flow of sage honey only once in three years, with only moderate flows the other two years, he must do things on a big scale during the fat years, to give him sufficient stock to supply his customers. Quick action, an ample number of trucks, a lease on the best canyon—these have enabled him to meet demands when others have failed to do so.

In selecting his canyon, Mr. Buchanan made sure of two things—proper distance from the ocean and absence of foreign weeds and buckwheat. He found that dry air is necessary to the best flavor. He takes no chances at all, but before moving to his sage fields he makes several journeys over there, and even digs into the ground to great depths to get a real line-up on the moisture reserve. He can estimate in advance very accurately how good a honey-flow he may expect. If he knows the season is apt to be short, he is prepared to increase the number of his bees. It should be noted, however, that in 1926, when he produced his record crop—a record never broken by anyone—he produced it from a compartively small apiary.

Three Kinds

Usually, Mr. Buchanan produces three kinds of honey—sage, orange, and Lima bean. The last named, however, is not produced for the market, but is produced only as winter food for the bees. "Plenty of honey in the hive in the winter time," says Mr. Buchanan, "is better than plenty of money in the bank. The bean honey is not the flavor of honey that I wish to put on the market, but it makes good bee food."

The bees go into the orange groves early in the spring. In order to produce a large amount of orange honey in a short time with the thought of being ready for the sage fields as soon as they are in bloom, Mr. Buchanan uses a large population in each hive, for reasons that any bee-keeper will understand — greater numbers left free to work, fewer required to heat the hive, etc. He has made some startling records for big production of orange blossom honey in a short period.

(Turn to page 68)

Novel Honey Package Pulls German Industry Out of Slump

By Dr. F. E. Nottbohm and Francis P. Griffiths

IN the last few years the producers of German honey have had a life and death struggle for existence because of the importation of cheaper foreign honey. They have met this competition by uniting in a determined effort to inform the German public of the quality of their product and by the development of a distinctive glass container that guarantees the origin and purity of the honey.

All honey imported or sold in Germany is subject to the regulations of the German pure foods law. This law sets a standard for the chemical composition of the honey and also controls the designation on the label of the product. The package must have the name of the firm or producer and the place of production, as well as the net weight or volume of the contents, printed on the label. Imported honey must all be so labeled.

To create a demand for the home product, establish the confidence of the consumer and build up a "repeat" trade, **the beekeepers in Germany have united in a national organization and have adopted a special distinctive glass, closure and label for the honey they produce.**

The glass container that they use has the same shape in all of its sizes. Besides glasses of 1000-, 500- and 250-gram content, there are the so-called "dwarf" sizes of 50 and 30 grams for hotel, train and restaurant trade.

The "standard" glass is neat and practical in appearance. It is easy to fill, empty, and clean. In the glass itself is stamped the insignia of the organization, and the words, "Gewahr fur echten deutschen honig" (guaranteed pure, German honey). The closure is a metal screw cap and is also stamped with the insignia of the society. The glasses are shipped in cardboard cartons which hold twenty-five of the 1000-gram (two-pound) jars or fifty of the other size jars.

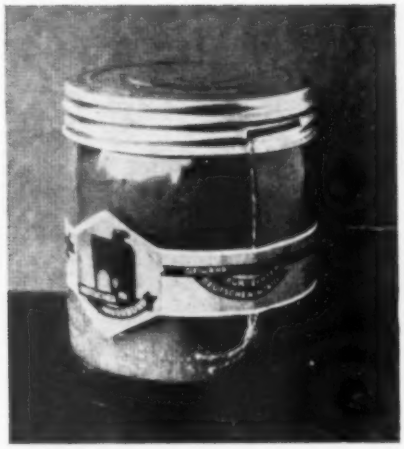
In order to prevent the possible use of the glass for honey not of German origin, a so-called "guarantee closure" is used. This consists of a strip of paper in the colors of the society, black, gold and green. A paper or string sash passes through a small hole in the edge of the cap and the ends are pasted to the glass under the label in the middle of the sentence, "Guaranteed pure, German honey." These paper strips are issued through the society to its members, and then only in the quantity that corresponds to the amount of honey they sell. In 1928 over 677,000 jars of honey sealed in this manner were sold. Advantages of the glass and seal are recognized and their use has greatly increased.

This is an article reproduced from "The Glass Packer" of August, 1931, a magazine devoted to the packing of food in glass containers and to the use of glass in the handling of various food products. It is published at 25 West Broadway, New York, editor John Ogden. It has many articles on honey and honey packing. This is one of the best.

In order to include the numerous farmers who have only a few hives and therefore produce only a small quantity of honey, a number of central stations for the grading and packing of honey have been established. These stations make possible the sale of a more uniform product, meeting European requirements and taste.

In Europe (unlike the United States) the ideal honey is one in which partial crystallization has occurred. The consistency is about that of a candy cream or fondant. To obtain this consistency it is necessary to store the honey for a number of weeks after harvest, carefully watch it and stir it at proper intervals. It is an important point that German honey is not heated. Heating, especially over 60° C., destroys the aroma and the enzymes which the honey contains. The food authorities have taken the stand that honey that has been so heated is no longer a natural product. This has caused some difficulty for importers from California, South America and other places.

The enzymes content of the honey is determined by the Bothe method and is rated in terms of what is known as the "diastase number." In ordinary honey this is usually between 10 and 50. When honey is heated above 60 degrees for any length of time this number rapidly falls to zero. According to German food regulations, the lowest number allowed for natural honey is 8.3.



The string (above) sealed under the label is proof that the jar has not been opened since packing by the national association. In the pack at the left, a paper tape is sealed under the label.

There is no color standard for honey, but in general the lighter grades find a readier sale. Very often the housewife has a preference for a particular sort of honey. Most labels state the nature of the harvest; for example, clover honey, heather honey, spring, summer, or late summer honey.

Honey is a luxury article and its sale is dependent upon obtaining the good-will and confidence of the purchaser. The consumer would like best of all to know the producer personally. The chief value of standard glass, seal and packing of the German honey is the establishment of this feeling of confidence. The buyer feels that in buying a jar of honey bearing the name of the producer and the emblem and seal of the German beekeeping society he is getting a genuine product of the highest possible quality. From 1912 to 1925 the production of honey declined. The adoption of the standard package has proven a big factor in reversing this decline. It is another interesting example of the glass container really selling the product.

Honey in Shock Absorbers

About a year ago we filled the shock absorbers on the Model A Ford with honey. As far as I can see, it has worked perfectly so far. Why should not honey work? It has most of the properties of glycerine and is much cheaper. I would like to know if others have tried it.

M. N. Dillon, Michigan.

Out in the snow, under burlap bags, seemingly entirely contented

When Should Package Bees Arrive? —The Earlier the Better

By G. H. Cale
Illinois

THE question is asked and answered right at the start—the earlier the better; but, of course, we must add, "within reason," because there are two to be satisfied — the shipper, with his often unfavorable early season conditions, and the receiver, who may not yet be out of winter when the bees come.

The use of package bees has become so universal and so satisfactory that no northern beekeeper hesitates any more to welcome this means of replenishing losses or making increase. A few have even gone so far as to kill all their bees in the fall, to be replaced with packages in the spring.

Parenthetically, let me add that while most of these ventures in wholesale destruction have not proved satisfactory, two outstanding advantages have been learned as a result of the experience. First, that, with satisfactory and dependable arrangements made for package bees, the northern man can get rid of his poor colonies oy uniting in the fall, only wintering, therefore, his prime colonies, with young queens, abundance of bees and stores, setting aside his empties, well protected, for the packages which will arrive the coming spring. It is an ideal possibility.

The second, and one seldom yet considered, is the opportunity which the package offers to eliminate disease. Bees may be killed in the fall and packages put back in clean equipment in the spring. This has been done, in one or two instances, in a wholesale way, thus removing disease in one operation.

How Early?

In the beginning of the development of shipping package bees it was thought that they should not be moved far at low temperature and that the northern beekeeper should not receive them before settled warm weather. Both of them are faulty conceptions.

All the records so far indicate that the earlier the package is received and introduced successfully the greater the returns from it the same season. Prof. Mitchener, of the Manitoba Agricultural College, in his published report, indicates that for that province the earlier packages are the ones which make crops not only equal to colonies which have been wintered over, but also, in many instances, larger than that obtained from the over-wintered colonies. Surely that is getting far enough north to give some information.

For several years I have also tried to determine what might be done with packages in current season honey in the central part of Illinois. One year (1926) arrangements were made for packages to be sent in lots of a dozen each, the first of April, the tenth of April and the twentieth of April—ten days apart. In this part of Illinois on the first of April it is often cold, inclement and frequently not weather that would be considered desirable for the introduction of package bees.

However, the shipments in the year mentioned, on the first of April, were hived carefully on full combs and fed sugar syrup above. They came through to the honeyflow in wonderful condition. They were hived in the same yard, the entire yard being established for this very purpose, with other colonies that had wintered over and which were in good condition for results that season. Briefly, the packages received April 1 made as much honey on the average as the colonies that had wintered over. This, remember, is for Illinois, where such results have not previously been expected.

Package in hive, with pails of warm water, and burlap to hold heat

Packages received the tenth of April fell a little under production; those received on the twentieth did not average within half the amount of honey obtained from over-wintered colonies in good condition.

This set me to wondering if it would be at all possible to have packages received even earlier than the first of April, so we arranged for a shipment of packages to be received here as early as possible in March, an unheard of thing to do. They came on the fourth of March, the day before one of the worst snowstorms of the winter.

What to do with them? Well, the picture tells what we did; put them out on the back platform, covered them with burlap, and you can see the snow pile over them. I had to dig it away to get the burlap to show. They stayed there from the fifth day of March until the eleventh day of March, with the temperature averaging between 25 and 40, and I never saw packages with fewer dead bees at the end of that period than in those packages. They were

A set of five combs on top, with protecting burlap at the sides

quiet and apparently contented. Of course, we fed them thoroughly on thin syrup before putting them out there at the time of their arrival.

On the eleventh day of March these packages were hived, and in the pictures I have attempted to show how it was done. The package

was placed in an empty hive body on a bottom board with entrance closed. We had to dig away a place in the snow and put down a piece of tar paper on which to set the hive. In the corner of the hive were two pails of warm water, and burlap was placed either side of the package. Then the feeder was removed and a hive body with five combs placed on top directly over the package, with the queen hung very low, right above the hole where the bees would emerge.

The next morning the bees were up on the frames with the queen. The package was entirely empty, although the thermometer outside was down to freezing. The next day, the twelfth of March, the hive was reduced by taking away the under part where the package had been released and an empty body put on top with pails of warm syrup protected by burlap, directly over the bees. They were, of course, on fully drawn combs.

This little experiment did several things for us: First, it made us feel confident that packages received early can be well taken care of even though it is cold, so we have confidence to place orders early. Second, that packages may be received in the cool weather of early spring and be hived at leisure instead of in the grand rush which attends their receipt in warm weather when they must be gotten into the hives at once. Third, that it does away with some of the objections of hiving packages, since there is no drifting and the bees become thoroughly established before they have very much flight.

While these colonies, from packages at this early date, did just as well as over-wintered colonies, they did not do any better. So, in this respect, they are worth no more than those that came on April 1. In some respects they are not as desirable, as they cost more to handle, require more feed and more nursing.

However, the points determined are worth while and show that reasonably early packages are the ones which will come the nearest to returning their value the same year.

A Circular Wire Brush for Cleaning

I borrowed some standard beekeeping material from a neighbor who had it idle. It had been kept in a cellar and you know what it probably looked like. In addition to that, it was travel-stained and well propolized. Scraping was too slow for me, so I used a circular wire brush, hitched to an electric motor. These brushes can be bought cheaply. It worked fine, doing the job nicely, quickly and evenly. There are two kinds of these brushes, coarse and fine. Use the coarse one.

H. A. Insinger, Missouri.

From the Little Blue Kitchen

Only a Penny

Out on the sidewalk I picked up a penny—
Only a bit of a copper cent,
Worth very little unless one have many—
Missed not at all if it chanced to be spent!

Just a wee penny of much handled metal,
Dropped by some hand in the muck of the street,
Scarcely a bill in the world it would settle—
Trodden, unnoticed, by hundreds of feet!

Humblest of coins from the mint of the nation,
Yet with earth's infinite things it is placed—
For to make up for its mint valuation
On it the head of Abe Lincoln they traced!

Lida Keck-Wiggins.

* * *

NOW that we are well launched on the current of the new year, which all the mystic prognosticators declare will be better by far than 1931, let us see to it that we help along "Providence" by being provident ourselves. This may be achieved in a lot of ways, none more important in the general scheme of living than the diet. By this I don't mean some certain remedial course of eating; rather a wholesome course which will keep the family in health rather than heal it once it has broken the laws and is suffering! "An ounce of prevention is truly worth a pound of cure"!

And, taking that idea and mixing it thoroughly with that other which reads, "Well begun is half done," let's think together a bit on some of the ways in which a day, each day, may be well begun. If we manage to achieve this, start out each day right, we are fairly likely to have a rather presentable mental diary, whose leaves we may turn over with pride and satisfaction on December 31, 1932.

Then let's to the breakfast table and see what Honey Lady is going to give us to help start the day.

Well, Honey Lady believes that charity, love, for her readers begins at home, so she is going to pass on today a long-cherished and frequently tried recipe for batter cakes; and the funny thing about it is that this is the favorite batter cake recipe of Honey Lady's husband. Nobody dares enter Blue Kitchen the night before the morning when the family is to be regaled on these delectable dainties; that is, not while hubby is at his mixing bowl. Also, he is frier-in-chief of the airy fairy cakes. He has, however yielded to Honey Lady's entreaties (a habit he has formed through a quarter of century) and written down his recipe. And here 'tis:

Honey Batter Cakes

1 cup white flour
½ cup whole wheat flour
3 teaspoonfuls of baking powder.
½ teaspoonful butter
1 teaspoonful honey
½ teaspoonful salt
1 egg, beaten lightly

Directions—Sift the dry ingredients together, then cream the butter and honey together and add, and then beat in the egg. Add sufficient buttermilk or sour milk to make the proper consistency, stirring well. Cook on a hot griddle, well greased, allowing the mixture to drop from the end of a spoon. Serve with honey.

Honey Lady usually begins breakfast with a half orange or grapefruit sweetened with honey, so when her hubby serves a batter cake breakfast, such as just detailed, the honey jar does a lively business, and incidentally there is never any indigestion discomfort afterward.

Waffles are delicious, too, when honey is used instead of maple or other syrup. They may not be any "better" served that way, but when one is forbidden cane and other sugars the little honey pot brought at one's request at a restaurant or the family table honey container is a gift from Olympus!

HONEY LADY was much pleased to receive in her mail some time ago a recipe from a friend who lives in a lovely farm-house on a hill, and whose dining room window looks out on a small orchard where is a stand of bees. This farmer lady has always had a rather delicate stomach and

(Continued on page 81)

Buchanan, World Leader in Sage Honey Production

(Continued from page 64)

The bees then go to the sage fields—sometimes as early as April 1, but in years of light rainfall as late as May 15. July 12 is the average date for moving to the Lima bean fields, and the circus goes into winter quarters in October.

A good portion of the time, however, Mr. Buchanan goes to the star thistle fields several hundred miles north of his home, in place of going to the Lima bean fields. The flow is not rapid in the star thistle, but the quality is such that the honey may be placed on the market if necessary.

In Tanks from Thirty to Sixty Days

"All of my honey goes into the tanks and stays there from thirty to sixty days," says Mr. Buchanan, "for it must settle properly and the unripe honey must be allowed to ripen. It is our aim never to let a bottle of honey which is not the best get out of our storehouse.

"Another thing: If we have honey on hand that is a blend, we market it as a blend; we occasionally have some because we go around to the stores handling our product and take away any that may be slightly darkened.

"I have seen considerable honey called sage honey that should be called a blend, or something worse, for the bees have been pastured on fields where there are foreign weeds, buckwheat and other plants. If such blend is to be sold, it should be properly christened. We are very careful that a blend is called a blend. Our prestige demands it."

It Is in the Buchanan Blood

Beekeeping is in the Buchanan blood. There have been several generations of beekeepers in that family. Although a graduate of two departments of the University of Michigan, and although admitted to the bar in three states, Mr. Buchanan never was able to resist the call of the wild. He had to be close to nature, to lie out under the stars, to study the little habitants of the hive, in order to be happy. He has been known to lie out on his back by a beehive for three days studying the habits of his pets.

His son, although a graduate of the California School of Technology and a licensed civil engineer, has gone whole-souled into the bee business with his father. The daughter, although an accomplished musician and recognized as one of the best harpists in her city, has during her whole life spent every spare moment helping her father with his beloved bees. When the bees move to a distant field of star thistle, the whole Buchanan family packs up and goes along.

The Honey Jelly Man

By N. N. Dodge
Washington

E. W. STEWART

Among the manufacturers and distributors of food products which may be used in combination with honey there are few more loyal supporters of the beekeepers' cause than Mr. E. W. Stewart, of Chicago, Illinois. Mr. Stewart, manager of the company which bears his name, is a distributor of fruit pectin, which is used in making jellies and in numerous other ways in combination with food products. During the last few years Mr. Stewart has conducted numerous exhaustive experiments in making honey jelly, and he not only is convinced of the fact that a superior jelly may be made with honey, but he has become very much interested in the marketing problems of beekeepers.

"Although my experiments show that honey does not produce a desirably flavored jelly in combination with many of the fruit juices," says Mr. Stewart, "there are a few fruits, such as the loganberry, which combine with honey to make delicious jellies and jams. Such fruits furnish an opportunity for the housewife to use honey in making her own preserves. However, there is a huge and as yet untouched market for honey waiting for the beekeepers of the country. Honey jelly is the key that will open the door to increased honey consumption in the bakery field. Commercial bakeries use tons of jelly every month in making jelly rolls, marshmallow cookies and other pastry products. In Canada a product known as the jelly sandwich is very popular. Jelly made with honey has a characteristic which makes it especially advantageous for use by the commercial baker—it does not break down when mashed. In the making of jelly rolls and other products the jelly is spread and mashed on the thin cake, which is then rolled. Ordinarily jelly breaks down when mashed and the moisture soaks into the cake, making the finished roll mushy and unpalatable. Honey jelly is a very different product and remains firm even after it is mashed. Furthermore, jelly made with honey and fruit pectin carries the fresh honey flavor which cannot be imitated."

Mr. Stewart not only has experimented with honey jelly for bakery use and "sold" the idea to numerous bakers throughout the East, but he has used honey jelly as the center for candies with very favorable results. He also has developed a process whereby fruit pectin may be used in cake dough, with the result that the finished product, after baking, retains 12 per cent more moisture than cakes made of dough with which no pectin was used. He now is experimenting with a pectin stock for cake dough in which honey is used with the pectin, in the hope of developing a commercial pectin stock which will enable bakers to prepare a cake dough which will leave the oven with an even higher moisture content, and hence finer texture and keeping qualities, than any cake mix previously perfected. Mr. Stewart believes that honey jelly offers beekeepers a solution to one of the major problems in the use of honey, that of inconvenience. Honey jelly is firm, easy to handle, and easy to spread. It does away with the runny, sticky, messy inconvenience of using liquid honey, but retains all of the flavor, sparkle and healthful qualities of "Nature's own sweet" of which it is made, is Mr. Stewart's claim.

Bees Are "Harmless" Until Stirred Up

A newspaper clipping sent us by M. N. Dillon reports the case of Judge John J. Maher, who tried a case in court against W. E. Becker, a beekeeper. The charge was that Mr. Becker made things a nuisance with the four hives of bees on his premises in town. The police department reported a case where the bees settled on a neighbor's linen and soiled it.

In defense, Becker maintained that "bees do not sting unless angered by someone trying to swat them, or are offended by the perspiration of a person or an animal."

The judge adjourned the case two weeks to give the neighbors a chance to come in and tell whether the nuisance had been abated, adding: "Bear in mind, I am one of those who find it a nuisance to have a bee buzzing around and have a natural inclination to swat one."

(Who doesn't?)

Sunnycrest Orchard Reports Satisfactory Crop and Gives Bees Due Credit

The Sunnycrest Orchard, of Cannelton, Indiana, reports:

"We used fourteen stands of bees in the orchard this year, besides several hundred thousand wild bees which volunteered their help, including some thousands of bumblebees that work longer hours and more persistently than the honeybees.

"We bought eight five-pound packages, about 25,000 workers to the package, and they worked. Our package contained a large cake of soft candy in the end and a can of syrup kept the bees well fed until they could obtain enough from the orchard and other pasture.

"Our results were most satisfactory. In one block of Winesap and Delicious we placed three stands of bees in six acres, bringing in tubs of Grimes and Rome Beauty blooms to help cross-pollination. In other years we have found the Delicious pollinated the Winesaps in favorable season, but failed to set well themselves. This year, for the first time, the 15-year-old Delicious are uniformly set with an excellent crop.

"Fourteen stands of bees on 130 acres of orchard sounds like a scant supply, and would have been except for the abundance of wild bees. Their chief value lay in their being concentrated in those blocks where special pollination problems prevailed, and here they served splendidly. With only half our acreage in good maturity, we will have a crop this year of more than 20,000 bushels of apples."

Frank I. Odell,
Sunnycrest Orchard Company,
Indiana.

Carniolans for Comb Honey

By Frederick Hahman
Pennsylvania

The articles on the races of bees are greatly enjoyed. It would seem difficult to find any flaws in Mr. Latham's praise of well bred Italians, and yet the best of Italians lack something which the comb honey producer is after. I have never found any Italians that can equal the blacks or the Carniolans in producing those snowy-white capped sections.

One point in Mr. Latham's article is assailable when he speaks of robbing. In a case of general robbing, of course, all hands will pitch in, whether yellow or black, but I feel safe in surmising that the trouble was inaugurated by the yellow bees, because Italians are inveterate robbers except during the height of the honeyflow. At all other times they have a mean, sneaking way of continually skulking in front of the entrances of hives and trying to get in.

Carniolans will not do that. I have no experience with Caucasians. In a section where American foulbrood is rampant, Italians will bring home the disease every time.

In producing quantities of honey, Mr. Latham with his Italians can stand firm and supreme, but in producing quality comb honey, will you please kindly step off the pedestal?

(Our pure Italians have never shown the robbing tendencies of the hybrid bees.—Editor.)

A Veteran of Veterans

J. N. Mays, justice of peace at Dilley, Texas, is called by the "San Antonio Express" in the issue of August 19, 1931, a veteran of the veterans, holding down more than one job.

He is 82 years old, has served twenty-two years as a peace officer at Dilley, and is in charge of the Winter Garden branch of the Texas Apicultural Laboratory under H. B. Parks at San Antonio.

Mays knows his bees and divides his time between dispensing justice and gathering honey, and claims he would not trade his means of subsistence for royalty.

The picture, which has been kindly loaned us by the "Express," shows Mr. Mays holding a hand-made rifle, made by his great grandfather, O. A. Mays, a smith in Green County, Alabama.

Mr. Mays came to Texas at the age of four years and located in Bell County, later Milam County, where a town was named from his people, Maysville. During the Civil War, Milam County was a banner cotton section when Mexico was the only market for southern cotton. The cotton was carted to the Eagle Pass market. Six or eight oxen pulled each cart, piled high with cotton, and six to ten carts in a train. About six months was required to make a trip to Eagle Pass.

J. N. Mays, a veteran of veterans

In 1873 Mays went to Kansas with a herd of 2500 Burleson County cattle, with twelve men in charge of the herd. After sixty-five days of travel they reached Smoky Hills of Kansas, where they were herded on grass until they were disposed of. This surely smacks of the old days.

Another Cottage Cheese Recipe

Evidently we started something by the query in the March number, "Who Makes Cottage Cheese?", on page 119. It was answered by Mr. Hahman in the May number with "Cottage Cheese — as Made by My Better Half."

Here is another one from E. N. Lloyd, of Amsterdam, Ohio:

"In response to the reference in March issue of the American Bee Journal relative to cottage cheese recipe, I wrote to Mrs. S. E. Canfield, of Garrettsville, Ohio, who has been furnishing a very superior quality of cottage cheese for a number of years, to increasingly satisfied customers, making request for her recipe. (Mrs. Canfield has also had a lifetime experience on a large dairy farm.) Mrs. Canfield's recipe is as follows:

"The first requisite in making cottage cheese is to have the right quality of milk. Milk from Jersey or Guernsey cows is the best. The first step is to remove the butterfat. In cool weather the milk must be kept at a temperature of about 70 degrees during the souring process. (In summer the milk will sour at temperature prevailing.) The milk must sour until it is solid. After the souring process has been completed, put the sour milk in a receptacle holding the desired amount (from a gallon up), allowing space for the water. Break up the sour milk by stirring, then pour over the milk scalding water, stirring constantly until the water looks like whey and milk is like cheese curd. Care must be exercised not to have water too hot, or cheese will be tough. When the whey and cheese curd condition has been reached, scalding has been sufficient. After about ten minutes, drain curd through a colander or muslin cloth. Wash thoroughly in cold water and allow draining off of water until the latter is all out. Salt to suit the taste and moisten with top milk."

By N. N. Dodge

A Record for Bee Tree Colonies

Paul Elbert, of Bellevue, Washington, thinks he has a record of some sort. On Sunday afternoons last summer he found and captured fourteen colonies of bees located in bee trees in the vicinity of his home. Mr. Elbert has developed a new method of locating bee trees which he thinks is a great improvement over those which have been followed for years, and next summer he plans to continue his tree hunting "work" so that he may become even more proficient. Mr. Elbert is not only interested in bee trees, but he thinks that honey is the finest sweet to be had, and to prove it he is investigating modified milk formulæ so that his five-months-old son may begin a milk and honey diet in the near future.

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Newspapers Support Honey Week.

Seattle newspapers cooperated enthusiastically with beekeepers to attract public attention to National Honey Week. Aside from editorials which brought out the importance of bees to fruit pollenation in the famous apple- and peach-growing districts of central Washington, both the Post-Intelligencer and the Seattle Times featured honey recipes and honey health articles in their home making departments during the week.

Augustine & Kyer, retailers of grocery specialties and fancy food articles, celebrated National Honey Week in their big Seattle stores with a display of honey and live bees. The display case and the bees were furnished by the Pearce-Dickerson Bee Farms of Woodinville, Washington.

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Standardization

Standardization of honey containers was a subject of much interest at State Beekeepers' Association conventions on the Pacific Coast during November. California, Oregon, and Washington associations each appointed a committee to make a study of honey containers with the plan of exchanging ideas and eventually determining upon certain sizes and styles of containers to be recommended to beekeepers as standards. It was the concensus of opinion at each of the conventions that the multiplicity of sizes and styles of containers used for packing honey is confusing to the public and injurious to honey marketing.

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Officers of Washington Association

Officers elected to carry on the 1932 activities of the Washington State Beekeepers' Association are: President, C. W. Higgins, Wapato; vice-president, M. F. Mommsen, of Parkland, and, secretary-treasurer, Dr. R. L. Webster, Washington State College, Pullman. Each officer was elected by a unanimous vote.

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Burning in Favor with Northwest Beekeepers

According to Dr. R. L. Webster, in charge of bee inspection work in the state of Washington, there is a strong tendency among Northwest beekeepers to burn colonies infected with American foulbrood, rather than try to save the bees and treat the combs. During 1931, inspectors in Washington State visited 940 apiaries and inspected 11,632 colonies of bees. Of these, 832 were found to be diseased and 351 were destroyed. Dr. Webster reports that investigations aimed at determining the life history of the insect which caused serious injury in the fireweed fields in Washington and Oregon last summer must necessarily be postponed until spring. At that time he plans to place the investigational work in the hands of a special student at Washington State College who will devote all of his time to a study of the insect. The grub which caused the trouble is the larva of a small moth, Dr. Webster states.

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Cooperation Both Sides of the Line

Because bees know no national boundary lines, beekeepers in the United States and Canada have many problems in common. Mr. J. B. Munro, deputy minister for agriculture of the Province of British Columbia, urges cooperation in bee culture work, especially in disease inspection, between beekeepers of the northern states and the southern provinces of Canada. Eighty-five per cent of the inspection work in British Columbia during 1931 was done within eight miles of the international line, states Mr. Munro. Careful inspection work close to the boundary between nations is the best possible guarantee of friendly relations between beekeepers of the United States and Canada, is the belief upon which Mr. Munro is acting in concentrating inspection work along the southern boundary of the province. British Columbia beekeepers have the same problems as do the honey producers of Oregon and Washington, and Mr. Munro urges frequent international meetings where these problems may be discussed.

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Northwest Honey Grading School

At the time of writing, plans are maturing for the Northwest honey grading school to be held in Portland, Oregon, January 23. Mr. E. L. Sechrist, of the Pacific Coast Bee Culture Field Station, is in charge of the school. Mr. Sechrist conducted a similar school in Nevada last summer. Beekeepers attending the school were enthusiastic over the instructions and assistance, especially in grading comb honey, which they received. Mr. Sechrist is in hopes that many Northwest beekeepers will be able to attend the school in Portland. Dr. R. L. Webster, secretary of the Washington State Beekeepers' Association and head of the Department of Entomology at Washington State College, is assisting Mr. Sechrist in notifying Northwest beekeepers of the time and place of the school.

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British Columbia Honey at London Show

The November 21 issue of "Canada," an illustrated weekly journal featuring Canada and Canadian activities, published in London, England, carried an interesting story regarding the exceptional showing made by British Columbia honey at the Imperial Fruit Show held in London, England. Of a total of nine prizes given in the three classes in which British Columbia honey was shown, the provincial product captured six.

Competition consisted of honey from the Province of Ontario, New Zealand, South and West Australia, Queensland, and the Irish Free State. In commenting upon the high rating made by British Columbia honey, Mr. A. W. Finlay, apiary inspector of the province, says: "There is no question regarding the advertising value of the favorable publicity attending such exhibitions, as, since the results of British Columbia's honey successes, orders and inquiries for British Columbia honey have poured in from many points of the world. Unfortunately, this province does not yet produce enough honey to meet its own requirements, the shortage being made up by importations from eastern provinces, but the stimulus given to home sales has already

cleared over 80 per cent of the 1931 crop, including a considerable carry-over from the previous season."

H. C. Derrick, of Vancouver; G. F. Pearcy, of Kelowna; Margaret Turnbull and William H. Turnbull, of Penticton, were the British Columbia producers whose honey won the several prizes at the Imperial Fruit Show.

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Improved Markets

A. R. Ovenell, of Burlington, Washington, noticed an increased interest in honey by buyers in November. Shortage of the 1931 crop of fireweed honey in western Washington was felt in December. Mr. Ovenell reports several sales of honey in half ton lots at as much as 10 cents per pound. Several of the beekeepers in Mr. Ovenell's district are already buying honey to keep their customers supplied. Mr. Ovenell also states that there is less outside honey than usual on his local market this year.

Illinois, How Could You?

A syrup made of honey and corn syrup packed in Illinois has been selling in the Seattle public markets at 35 cents per half-gallon pail.

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Chamber of Commerce Features Honey

On December 18, 1931, Mr. Lloyd Spencer, of the Seattle Chamber of Commerce, spoke over radio station KXA, Seattle, about honey. Mr. Spencer talked for about ten minutes and told of the production of honey in the Northwest, some of the new uses to which honey is being put, and of the importance of bees as agents of pollenation in Northwest orchards, especially in the Yakima, Wenatchee and Boise valleys.

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Cowlitz County to the Front

"If the present rate of increase in bee colonies continues, the production of honey holds promise of becoming an agricultural industry of importance in Cowlitz County, Washington, next to dairying and poultry, according to Deputy State Bee Inspector Martin Pykonen," is the leading statement in an article on honey production in Cowlitz County recently published in the Seattle Daily Times. Colonies of bees have increased 50 per cent in the county during 1931, Mr. Pykonen estimates, and the county produced approximately 65,000 pounds of honey during the last season.

Ants

Here is another recipe against ants, taken from the "Rucher Belge":

Prepare a solution of one part of hyposulphite of soda in ten parts of water. Sprinkle with it the spots where the ants travel and also the ants' nests if you find them. Then spread some unslacked lime on the spots sprayed.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

THE CHLORINE TREATMENT

On page 464 of the October American Bee Journal there is a write-up of a new way to disinfect brood combs. Can you state if this way has proven safe? I expect to disinfect only super combs that were in hive bodies above the brood; no diseased cells.
KANSAS.

Answer—I believe that the method recommended by Mr. Tanquary for disinfecting brood combs is good.

However, I would hesitate to use it on brood combs containing or having contained diseased brood. But I believe that the method would be entirely safe for super combs that have not contained any brood, but have only been occupied by colonies suffering from foulbrood. But, by all means I would extract every bit of honey that the combs contained before subjecting them to the treatment. We cannot be too careful in this matter.

A SHARE BASIS

I own seventy hives of bees, but am really too busy taking care of a 160-acre farm to properly take care of them except by hiring help or share leasing the bees. The question I would like your opinion on is, what share of the crop should I receive if I pay for my share of marketing and wax, etc., on chunk comb production? I also pay for all queens and replacement equipment. The honey crop averages 150 pounds or better in my location.
IOWA.

Answer—We never gave bees out on shares, but we often took bees on shares and got half of the product, paying for our half of the supplies. We have also placed bees out on farms and allowed the farmer one-fifth of the honey harvested, but in that case we did all the work ourselves and paid him for catching the swarms that escaped.

We would think that about a half of the crop would be right as a salary. But the swarms ought to be retained by you. Of course, if the beekeeper also sells the crop and gives you your share in cash, it is worth something, for selling the crop is a big job, unless one sells it at wholesale.

It may pay you better to give a salary to the man who cares for the bees, if the crops are always as large as you say. But when a man accepts a share he is taking the risks of a poor crop. All those matters are worth considering.

SWARMS AT THE OUTYARD

As I intend to have bees out in the country this summer and cannot watch for swarms, I would like to know if I put bee entrance guards on the hives, if the queen will kill the young queens and keep on egg laying? I keep them in Modified Dadant hives, and they don't swarm very often, but if they did it would be a big loss.
MINNESOTA.

Answer—As a rule, colonies in Modified Dadant hives, which have been given sufficient surplus room and have but few drones, do not swarm if they have plenty of room for ventilation and shade.

But if they rear queen-cells they usually prevent the old queen from destroying them. It is therefore good policy to use queen-excluding entrances, although the latter are likely to make the bees feel uncomfortable.

We never use such contrivances and take chances on the bees swarming, in our outapiaries. We lose but few swarms. If you can get the owner of the farm where the bees are kept to look out for swarms and catch them if they emerge, it will be better than any device to keep them in. If your queens are not over a year old, there will be but few swarms.

HANDLING BEES

1. How can you remove the cover of a hive without having the bees fly at you—so you can examine the frames with the bees undisturbed?
2. How can you prevent robbing?
3. What is the proper way of killing the beemoth and its eggs?
MINNESOTA.

Answer—1. Very few people can succeed in removing the cover of a hive without disturbing the bees at all. It is much better to smoke them lightly at the entrance first and again over the tops of the combs after the cover is removed. Not much smoke is needed, only just as much as will keep the bees from flying at you.

2. Robbing will not occur if you do not keep the hives open too long when examining them, and especially if you do not keep any honey or other sweets in reach of the bees. Sometimes a hive is robbed by another. This is caused by the robbed hive being too weak in numbers, having no queen, or having too many combs for the bees to care for.

3. The same thing may be said of the waxmoth. There is no danger of the waxmoth invading the hive if it is strong and the bees can cover all their combs. It is a waste of time to look for moths or for their eggs, as there will always be some that will escape our notice if the colonies are weak. Keep your colonies strong. That is the essence of the business.

HOW BEES SMELL

Could you tell me whether **bees smell** or **do not**? If so, what is the organ used for smelling?
INDIANA.

Answer—It is understood by all investigators that the bees have very fine organs of smell and that these organs are located in the antennæ, the two long horns that protrude from their head.

You can easily recognize this when you see bees approaching one another. They always cross their antennæ, making it evident that they recognize one another by the smell. It is also with their antennæ that they approach the flowers in which they look for nectar. If you offer them honey, they will touch it first with the same organ before extending their tongue to sip it.

ONE COLONY OF INCREASE FROM TWO COLONIES

I am calculating on starting artificial swarms next summer when the colonies are well built with bees. Can I take about four well filled frames with brood, put them in a hive body with adhering bees, move them on a new stand and confine for three or four days, break out all queen-cells and introduce queen from some raiser of good queens — or will they raise a queen from larvæ? Will use about six swarms for making new swarms. Please advise, or suggest your experience in making new swarms.
WISCONSIN.

Answer—Yes, you can make increase by

division, as you propose to do. We prefer to make one swarm out of two colonies by taking the brood and young bees out of one of them and placing the swarm thus made on the stand of another colony, which we put in a new place. Thus one colony furnishes the brood and the other furnishes the field bees. By giving them a queen right away, we have good colonies at once. This process may be continued with the same colonies a few weeks afterwards.

If you wish to rear the queens yourself, it is best to rear them in nuclei, after rearing the queen-cells in strong colonies up to the ninth day. This queen-rearing requires a little more knowledge than the mere making of divisions. For that reason you would probably succeed best in buying your queens, especially since so many queens are raised in the South at very low prices.

PACKAGE BEES AND FOULBROOD

I am a honey producer and have quite a few hives of bees, but I kill my bees in fall and buy package bees in spring, and I have foulbrood. Last year I got enough boxes for twelve colonies of bees. What would you do to get rid of foulbrood, the fastest and cheapest way? NORTH DAKOTA.

Answer—If you have had foulbrood in your hives and have killed the bees in order to buy packages in spring, we would advise you to melt up all your combs, burn the frames and singe your hives with a gasoline torch or with coal oil. Then buy new frames and fill them with comb foundation in spring. There will be no danger whatever then.

You should bury all dead bees and all refuse which is not made safe by fire. We prefer to burn the frames rather than singe them, as they are hard to handle.

WHAT RACE OF BEES FOR THE BEGINNER

I am a reader of your Journal. I expect to start with a few bees this spring and will use the Modified Dadant hive, and you know everyone is anxious to start with the best kind of bees, which would be most impossible to decide from the ads and articles in the journals. I also know that it might be impossible for you to recommend anyone's bees, as you have so many ads in your columns, but you may be able to give me some pointers. Do you think the Caucasians are better than the Italians, or as good? I imagine there is more in strains of bees than kind . IDAHO.

Answer—I would recommend the use of Italian bees, the three-banded, that have not been inbred for color.

The Caucasians are a good bee, about as good as the Italian bees, but the trouble with them is to recognize when they are mismated with the common black bee, because their color is so very similar to that of the black bee. In the Italian bees you can always judge by the three yellow rings.

However, all those races are good. The Italians and the Caucasians are gentler in disposition than the common bee.

CONTROLLING SWARMING FOR CHUNK HONEY

I use the Langstroth ten-frame hives and shallow supers for chunk comb honey, with excluder between supers and hive. I want to avoid increase. Can I control swarming and prevent increase in the following manner?

1. If I remove most of the brood, substitute empty combs or sheets of foundation and place the brood in another hive body and set it on top with one or two supers between, would the bees store honey in it in preference to storing in the supers? And what about the drones that might hatch out above having any way to escape?

2. If a swarm first issues and is hived on the old stand, the parent colony being set to one side and later all queen-cells destroyed, and, when the brood is all hatched out, if I shake the bees from the parent colony into the swarm hive, would not there be some fighting, as by the time this was done the young bees would be strangers to the swarm colony?

3. Requeen early in the spring, killing the old queen a few days before introducing new shipped queens. Would they accept new queen as readily after having been queenless, say, for five days, then destroy all cells and introduce shipped queen? I do not want to dequeen for a few days and then return the old queens, as most of them are hybrids now. ALABAMA.

Answer—1. The suggestion you make is all right. You can supply a way for the drones to fly out by furnishing an opening to the upper hive. But it would be still better to do away with the excluder. We don't use them at all.

2. There would not be much fighting between those young bees, if they were full of honey, and the bees of the hive, provided the honey season was on yet.

3. It is best to leave the old queen in the hive until you have a new queen to take her place, as the bees do not feel queenless at any time and do not attempt to rear another queen, as they do when you kill the queen a few days ahead of furnishing a new one.

WE DO USE THE M. D. HIVE

I have been reading your "Dadant System of Beekeeping." In it you tell of using a hive with frames of full Quinby size, and yet you recommend the frame of Langstroth length and the use of eleven frames. Your modified hive also does not have a division board, as you sell it. After reading your book I have taken a different attitude toward this board, and I think it should be in the modified hive too. I also read in another book that you would use the modified hive if you were starting again. Why don't you use it now? As you explain it, your old Quinby size frame hive sounds best to me. If you have changed your attitude since you revised that manual, I would like to have the reason so that I may consider it also. IOWA.

Answer—We have not changed our views concerning the Dadant frames versus the Langstroth. The Langstroth frame is not deep enough to contain a sufficient amount of honey above the cluster in winter. But it is long enough, and as so many people use it we have concluded that by making the hive of the Langstroth length the beekeepers could use any sort of Langstroth hive supers on the Modified Dadant hive.

You ask why we don't use the Modified Dadant. We do use it, but of course we don't propose to transfer the bees from the standard Dadant hive to the modified. We have apiaries entirely of one kind.

As to the division board, or dummy, as some people call it, we have them in every hive. But many beekeepers do not see the usefulness of this board, so we do not insist on it.

If you adopt the Modified Dadant hive, you will not be sorry of it. The Langstroth hive people have seen the insufficiency of the brood chamber for winter and now use what they call a "food chamber" above, or, in other words, a two-story hive, which is larger than needed.

The Gist of the Matter

(Continued from page 61)

about which fact is what we need most, and if we are to base our approach to the problem of disease on facts let's see how we stand:—

"Observer" makes the statement that "any beekeeper may save his colonies, his bees and his equipment; any beekeeper may do as much control or eradication work as he pleases, under any law. He may even do it under the law which compels the inspector to burn disease when it is found, **provided the inspector does not find disease when he inspects.**" This is not exactly the quotation, but it is the gist of it.

In our humble opinion, that settles the whole question.

Going back to our prerogative, therefore, as a beekeeper instead of an editor, it seems to me that I have every freedom under the sun to do as I please.

As a beekeeper, I have only one quarrel with this conclusion, and that is if I were a beginner and did not know disease, I would certainly hope the inspector would do his best whenever possible to teach me what is known about control, and I would certainly hope that he would not destroy my property, cripple my venture and disgust me with beekeeping. And that is the only quarrel I have with the impartiality of the burning regulation.

As a matter of opinion, however, I venture to call attention to the statement by Mr. Wing, for years one of the editors of the "Breeders' Gazette," dealing with farm animals, that we have much to learn from control measures.

An Appreciation of R. W. Frow

(Continued from page 56)

before he made his discovery and to compare that position with the position today. Then, at its onset, all the beekeeper could do was to simply let matters drift in the hope that at any rate some of his stocks might escape destruction. Now he can examine his bees and if he finds mites in them he can treat during the non-active period of the year with the certainty that the progress of the disease will be stayed entirely; or, if he be wise, he can give all his colonies a treatment every fall or early spring, and so make sure that the disease, even should it find lodgment during the year of work, will be put an end to before it has time to develop into a serious menace to the health of any colony.

Acarine disease does not make very rapid progress at first and the infestation by the mite may take a long time to reach the stage when it causes crawling and heavy mortality. In this fact more than in any other lies the great value of the Frow remedy. It enables the honey producer to control the disease in such a way that it can never really prejudice his crop of honey. A few diseased in a colony have very little effect and would never be suspected at all in that early stage of the scourge. It is when many thousands of bees have become heavily infested and have their tracheal tubes half destroyed that the external trouble begins, first as a falling off of honey

gathering power of the stock and then as the disease advances it takes the form of wholesale crawling out to die. The Frow remedy, if applied systematically, effectually prevents all this, and therein lies its superlative value to the honey producer.

Although acarine disease is not at present, at any rate, known in America, yet Mr. Frow, who, when he might have made money by protecting his remedy and selling it, made the whole thing a free gift to beekeepers the world over, should be known and appreciated wherever bees are kept. Even though acarine disease is at present unknown across the Atlantic, yet American beekeepers will do well to hold it in respect like the old lady who always bowed when the devil was mentioned, because "you never know." As things are, were an outbreak of this dreaded disease to occur in your country you are in the happy position, thanks to Frow, of knowing how to control it at once, and for that, at least, American beekeepers should be and no doubt are thankful, and will fully appreciate the good work and good will of R. W. Frow.

"Stick to the Bees" — Look Ahead With Confidence

(Continued from page 53)

to school, provided a comfortable home and a moderate degree of luxury. Now that he has reached middle age, he finds himself free to give some time to outside affairs while the sons attend to the business of the apiaries.

This account might include the part which Mrs. Brown and the boys have had in the development of the business, but that is another story.

If you feel discouraged because the honey crop is light and the price is low, just consult someone like Ed Brown, who has depended on bees through thick and thin, and he will still say "Stick to the bees."

Why Don't You Eat Honey Regularly?

The above question is asked of the beekeepers by the publisher of the Gazette Apicole, Montfavet-Avignon, Vaucluse, France. He wishes us to publish it and request our beekeepers to answer. This is a very pointed question, for there is very little wisdom in our urging people to use honey if we do not use any ourselves. The beekeeper who wishes to sell his honey and have plenty of demand for it should give the example of honey consumption.

Now, friends, please answer the question. If you don't eat honey regularly, why don't you? You must have a reason.

NOTICE BEEKEEPERS

Many of you have been dissatisfied with your purchases of package bees in the past. For one time you can have the satisfaction of receiving what you buy and pay for, by sending your order to us. Why, we absolutely guarantee that you will receive them on time, full weight, young 1932-reared Italians of the very best, hardy, honey-gathering strain, and at the depression price.

Yours for service,

T. W. BURLESON & SON, Waxahatchie, Texas

20 Years' Shipping Experience — 2300 Colonies

BUY BEE SUPPLIES NOW

PRICES are lower than they have been in many years. Every depression is followed by a period of prosperity, when prices go up. Take advantage of these low prices before they start on the upward trend.

Write for our catalog of new, low prices for 1932.

A. H. RUSCH & SON CO.
Reedsville, Wisconsin

JENSEN'S
PACKAGE BEES AND QUEENS

Orders booked now. Shipment when you want them per agreement. Indications point to increased demand, and prices have reached bedrock, so there can be nothing gained by waiting. It helps the shipper to know in advance something concerning the volume of business he must prepare for.

Selective breeding through the years has had marked influence on our original stock, and this year will be extended to "Selective Breeding to Meet Northern Conditions." Breeding queens as well as drone mothers will be selected from the best in our Nebraska apiaries.

Our shipping cages and method of packing for shipment the past two years have met with much favorable comment.

A postal brings our descriptive folder and price list.

JENSEN'S APIARIES : : *Crawford, Miss.*

WRITE US FOR LETTERHEAD DESIGNS

WATERLOO ENGRAVING & SERVICE CO.
WATERLOO, IOWA

ROY'S SPECIAL

High quality golden and three-banded Italian queens and bees. Are now ready to book. Prices as follows:

Special orchard package or early builder, a two-frame nucleus, three additional pounds of bees with a select young queen introduced, $3.50 each, any number.

Two-pound packages with a select young queen, one to five packages, $2.25 each; six or more, $2.00 each.

Three-pound packages with a select queen, $2.75 each, any number.

Four-pound packages with a select young queen, $3.50 each, any number.

Two- and three-frame nucleus with select young queen same price as pound packages.

All bees are shipped on standard Hoffman frame of brood and honey. Prompt and efficient service and safe arrival guaranteed. A health certificate with each shipment. All lost will be replaced at once with bees or money with bad order report signed by express agent. Also ship combless packages on sugar syrup, same price as comb packages.

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AMERICAN BEE JOURNAL, Hamilton, Ill.

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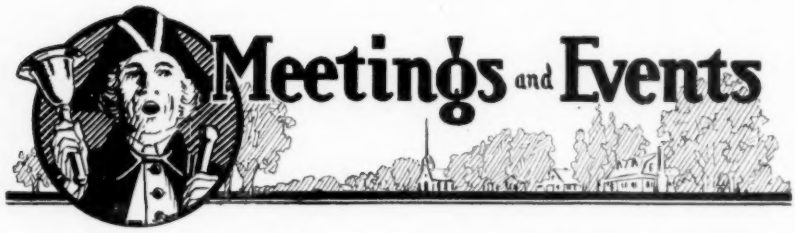

Rea Back to New York

George H. Rea, who left the state for beekeeping in North Carolina and Pennsylvania, has been returned to his old position at Cornell on the staff of Dr. E. F. Phillips, effective the first of January. He may be addressed at Dairy Building, Cornell University, Ithaca, New York. His many friends will be glad to welcome him to the position which he so well filled for a number of years.

Sipple President of Mountain States

O. A. Sipple, of Montana, was elected president of the Mountain States Honey Producers' Association at a meeting recently held at Boise. It has been decided to discard the old marketing contract and a new one was drawn up at this meeting. Methods of honey distribution and marketing were, of course, the gist of the discussion.

Alameda County (Cal.) Gets Behind Institute

The Alameda County Beekeepers' Association, California, was one of the first to act in contributing on the basis of a dollar a ton for all the honey produced by members, the money being to support the American Honey Institute. All members at a meeting of the association voted to send in this amount. Stanislaus County followed a few days later.

Honey May Be Substituted for Syrup at N. D. State Institutions

Desire has been expressed by the State Board of Administration of North Dakota to substitute honey for syrup in purchasing food supplies for the various state institutions, provided it can be secured at somewhere near the same price. This action on the part of the Board shows a commendable attitude and will be lauded by beekeepers, believes J. A. Munro, secretary of the State Beekeepers' Association. Annually there are more than three million pounds of honey produced in North Dakota, of which one-third is exported.

Honey prices are on a par with those of syrups when the extra food value of honey is considered, declares Mr. Munro. Honey has of late found much wider use than that of a spread for bread and hot cakes. It has high value as a sweetening agent in cookery, and finds special favor since its main sugars have the power of keeping foods moist and fresh.

During National Honey Week, November 9 to 14, the public was given an opportunity to become acquainted with the uses and values of honey, which has been rightly termed "Nature's own sweet."

Publicity in "United States Daily"

In the Friday, January 8, number of "The United States Daily," edited by David Lawrence, is an article by H. M. Krebs, of the Department of Agriculture of California, on "Getting the Best Work Out of Bees in the Honey Industry." Mr. Krebs has just the right attitude for a man in his position, because there is nothing in this about the diseases of bees or any phase of our industry which might not be tasteful to those who read it, most of whom will be consumers of honey if we teach them correctly.

The article is fine reading. He brings out the point that bees do not work for nothing and board themselves; that it takes some effort to produce honey. He tells what the beekeeper does to get the bees in shape for the crop, how the crop is obtained — good publicity.

New Officers at Utah Meeting

New officers elected at the annual meeting of the Utah State Beekeepers' Association at the Hotel Bigelow, Ogden, January 12 and 13, include: J. F. Wakefield, Provo, president; James F. Ellis, Spring City, vice-president; O. R. Baird, Provo, secretary (re-elected); Reuben G. Rhees, Ogden, and L. L. Larson, Brigham, directors; A. W. Anderson, director of Mountain States Honey Producers' Association for Utah, as well as member of the board of directors for the association.

T. L. Ball, retiring President and host of the Utah Association, at Superior Honey Co.

The keynote of this meeting was local selling and cooperative marketing. W. A. Langraf, of the American Can Company, Denver, Colorado, exhibited new containers; tins with cellophane tops to show the honey below, and also cardboard and tinfoil tops were exhibited. Modernistic, round and squatty jars in glass were shown by Lawrence Evans, of the Taylor Brokerage Company and the Illinois Pacific Company of San Francisco.

There were nearly one hundred beekeepers from Idaho, Wyoming, Nevada and California. There was a decided feeling of optimism for 1932.

On Monday he beekeepers visited the thirteenth annual livestock show in the Coliseum and were entertained by the Superior Honey Company at noon. On Tuesday afternoon they visited the plant of the American Can Company, through the courtesy of the president, John G. Leonard.

This was one of the most successful meetings in the state for many years. While the actual selection of a convention city for 1933 was not decided, it will probably be Salt Lake City.

Glen Perrins.

International Congress in July

Although the International Apicultural Congress will not convene in Paris until July, 1932, it is already the focus of a great deal of interest. It will undoubtedly be one of the largest and most important meetings in the history of beekeeping.

Meetings of beekeepers in England and on the continent will be held immediately preceding and following the Paris conference. For instance, word has been received from the Glamorgan Beekeepers' Association, "Y-Bwythyn," The Graylands, Rhiwbina, Glam., Great Britain, in which the Honorable J. W. Gedrych, secretary, extends a cordial invitation, as follows: "Should you know of any of your countrymen coming to this side at this time, who would enjoy visiting us as much as we would surely enjoy a visit from them, I shall get in touch with them if you will advise me their names and addresses."

American beekeepers who can attend the Congress will be well repaid for their effort. The opportunity to hear and to meet the world's outstanding authorities on apiculture is in itself well worth the cost of the trip. Visits are also being planned to some of the noted apicultural research laboratories and to renowned and historical places of interest.

The fact that the Congress will

be held in Paris need not deter anyone from attending, as a corps of competent interpreters will be provided for those who do not speak the foreign languages. This is an unprecedented opportunity to hear the world's outstanding apicultural authorities, to meet and become acquainted with them and to visit their research laboratories, in addition to traveling in Europe under the most auspicious circumstances.

In view of the fact that the International Entomological Congress will be held in Paris at the same time, special rates will be arranged for groups both in crossing and for the special trips in Europe. Those who expect to attend should let their plans be known. It is suggested that some organization, such as the American Honey Producers' League, act as headquarters for the American contingent.

James I. Hambleton,
Senior Apiculturist,
Washington, D. C.

Regina Free Beekeeping Course

The Bee Division of the Department of Agriculture of Saskatchewan is giving a free short course in beekeeping February 22, 23 and 24. Details can be obtained by writing to Provincial Apiarist R. M. Pugh, Department of Agriculture, Regina, Saskatchewan.

Maryland Report

The Maryland State Beekeepers' Association held its twenty-third annual meeting at the Lord Baltimore Hotel in Baltimore on the evening of January 6.

The association is one of several organizations affiliated with the Maryland Agricultural Society and each year holds its most important winter meeting during the week that the Maryland Agricultural Society-Federal Farm Bureau convenes.

In spite of a cold, rainy night and the fact that we could not hold one of our bee-catching contests in the hotel lobby (hotel managers are funny that way), we had a good attendance.

President A. Howard Johnson, of Centerville, called the meeting to order and delivered his annual address, in which he commended the association for its activities during the past year. In particular, Mr. Johnson praised the cooperation between the members of the association and the Extension Service of the University of Maryland in successfully promoting National Honey Week in Maryland on a truly statewide scale.

A paper titled "Increasing Honey Sales" was given by George J. Abrams, specialist in apiculture. Mr. Abrams sounded again the old plea for local sales and the building up of a personal trade as the best method of disposing of a honey crop.

Mr. W. J. Nolan, U. S. Bee Culture Laboratory, gave an interesting talk regarding the selection and preparation of bees, honey and wax for exhibition at fairs.

Mr. W. C. Cary, A. I. Root Company, discussed the pollination problem and told of his experiences in this work in Virginia. This started a general discussion which demonstrated the growing interest in pollination by Maryland beekeepers.

George J. Abrams.

Nebraska Honey Producers Elect Officers

At the recent meeting of the Nebraska Honey Producers' Association the following officers were elected for the 1932 season:

President, Robert H. Walstrom, of Omaha; vice-president, Ralph Barnes, Morrill; secretary-treasurer, Don B. Whelan, Lincoln.

Illinois Short Course

The Illinois short course in beekeeping was held in connection with the farmers' short course at Urbana, Illinois, on January 12, 13 and 14, with thirty enrolled, which compares very favorably with previous years. Of the attendance, about half were students and half beekeepers, some from as far as 150 miles away. The speakers were V. G. Milum, M. G. Dadant and V. N. Argo, of Columbus, Ohio.

Radio Talks Over WOI

It is proposed to inaugurate a 1932 series of radio talks over our station, WOI. This series will begin Monday, March 14, at 12 o'clock noon, and will occur on each succeeding Monday for twelve weeks. The response which has been obtained from the radio discussions in the past leads to this further effort, and with the experience of two seasons it is hoped that the information which will be delivered over the air will be of very timely and of utmost importance to producers of Iowa and adjoining territory.

F. B. Paddock,
State Apiarist.

That Bear of Joubert's

It occurs to me that Mr. Bear smelled the approach of the hunter, probably. Of course, Mr. Joubert, you may have known this and so acted accordingly. In such a case I wouldn't know what to suggest, unless you set bear traps in the apiary, baiting them with honey. If this fails, I suggest you take your position high enough to outwit the bear, or, if you make the rounds at night, approach the apiary from the side against the wind. Anyhow, here's luck to you.

H. A. Insinger, Missouri.

You Can Ride My Hobby, Too!

For 38 years I've had a hobby—breeding and shipping bees and queens. The net result is

Berry's Reliable Bees and Queens

You can ride my hobby, too. Get your packages and queens in 1932 from Berry. Close selection, careful testing, culls religiously thrown out. Safe arrival. No disease.

Send for our new 1932 price list.

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	2 lbs.	3 lbs.
1-10	$2.25	$2.90
10-50	2.00	2.65
50 or more	1.75	2.40

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PORTER BEE ESCAPE
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R. & E. C. PORTER, Mfgs., Lewistown, Ill.
(Mention American Bee Journal when writing)

Hardy Caucasians Ready for 1932

Both packages and queens.
Large or small quantities.

They'll be right on the job for the 1932 honeyflow

Drop us a line ahead of time.

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Brooklyn, Alabama

Satisfaction

That's what you get when you buy L. L. FOREHAND'S BEES AND QUEENS. The first thing you notice on arrival is a full-weight package of pure Italian bees with fine, large, yellow queens. After installing the packages you find the bees to be very quiet and gentle, which makes easy and fast handling. When the honey-flow opens you will find them to be the best workers you ever owned, with very little desire to swarm and highly resistant to diseases.

Every package will have 25 per cent overweight in bees when packed. We have perfected a package that will eliminate every ounce of surplus weight, which will mean a great saving in transportation charges.

We guarantee every package and queen to give perfect satisfaction or we will replace free of cost or refund your money, with all transportation charges you have paid out.

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Insist on the Best

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We are now booking orders for 1932 delivery. We have the stock, equipment and experience, and can give you prompt service.
Our queens and bees are as good as money can buy. Have never had one complaint. Satisfied customers in every Northern State, and every province in Canada. "There Is A Reason."
Write for circular and prices.
J. G. BRUNSON - CHICOTA, TEXAS

Mention American Bee Journal when writing advertisers.

Bees in Relation to Pear Blight

(Continued from page 52)

from oozing cankers to blossoms, to pushing branch buds and to young expanding leaves. Growers in California find almost without exception that spring blossom and twig blight occur in individual trees containing oozing holdover cankers, or in small groups of trees surrounding a tree harboring such cankers, and quite commonly on trees in the path of the prevailing wind blowing from an oozing canker. However, in case of a severe epidemic in an orchard the relation to the holdover canker is not so clearly evident.

In California there are immense numbers of insects of various kinds living in the trees throughout the blossoming period. Honeybees constitute only a very small fraction of a per cent of the insect population, and they are seen to be present in pear trees only occasionally. Of course, when they are present they perhaps visit practically all the blossoms. But other insects are present not only all day long, but some of them pass the night in the blossoms.

The relation of rain to the spread of blight from holdover cankers and from blossom and new twig infection is so evident some seasons as to be beyond question. In the spring of 1930 I counted ten infections surrounding an oozing canker. Seven of these were in new shoots and three in blossoms. All were below the canker except one of the blossom infections, which was about three inches above the canker.

Another tree with an oozing canker in the trunk had scarcely a blossom that escaped infection. The evidence in this latter case was that insects had carried it upward. The insect most frequently seen feeding upon this ooze and alighting constantly upon the blossoms was the blow fly. Species of blow flies and greenbottle flies are very abundant in our orchards during the blossoming period. Other very common insects, species of which are found in large numbers on blossoms and new twigs, are squash bugs, syrphid flies, bee flies, diabrotia, mosquitoes, thrips, plant lice, ants, wasps, click beetles, tarnished plant bugs, and leaf hoppers.

In pear trees in California many of the infections in blossoms and twigs run only a short distance and stop, but in vigorously growing trees there are always a few which do not stop, but continue to progress downward until the whole tree is killed, unless the infected parts are pruned away or else canker treatments employed to stop the progress of the disease.

New infections continue to occur throughout the spring, and a few during the heat of the summer and fall. The summer and fall infections, though not so numerous, are often more persistent and more serious than the spring infections. Insects seem to be the chief agency of spread in the summer and fall, since we seldom have rains from the middle of June to the middle of October.

I have never observed any serious amount of blight in young orchards before the blossoming age, except when quite close to older ones. Occasional twig infections have been seen in young trees a half mile or so away from older trees affected with blight. Presumably these infections were caused by biting or piercing insects which had visited the infected trees. The preponderance of evidence is that the first infections in a previously uninfected orchard are largely through the blossoms. How much this spread is due to insects and how much to wind or wind-borne rain is not known.

Late blossoms and late-blooming varieties are more subject to blossom blight, as a rule, than are the early blossoms and early blooming varieties. Apples usually bloom later than Bartlett pears in California, and they usually have a severe blossom infection if the blight gets an early start in nearby pear blossoms. Insects, including bees, and rain seem to be responsible for the transfer.

Fortunately at the present time the divisions of entomology and plant pathology of the California College of Agriculture are launching a concerted and determined study of pear blight in California in all its phases. And on the bee side of the problem the United States Department of Agriculture is cooperating in this work through the newly established Pacific Coast Bee Culture Field Station.

The Lawrence Two-Queen System

(Continued from page 58)

combs of nucleus. That is all there is to it.

Virgins cannot be mated from one side of the double brood chamber when there is a laying queen in the other. Even supersedure queens are killed and swarming may occur.

However, few swarms come from these double hives, and Lawrence is certain, when one does it is due to some fault in either one queen or the other. If one side swarms, the other side also may swarm, even without queen-cells.

Spring Management

In this two-queen system with double brood chambers, no attention is needed to the brood chamber after it is established and a round of brood has been reared in the spring, each

queen having been found to be good or replaced by young ones.

No changes need be made during the summer. No brood need be lifted, no combs exchanged; the danger from disease is lessened. All the old black combs stay in the brood nests where they are wanted and are not spoiled by handling. Honey is stored only in clean white combs, because little or no pollen is stored in super combs, the quantity of pollen in the extracted honey being very small.

If, by strict attention to the principles described, one can succed with it, it seems to invovlve a minimum of summer work with the bees and to result in surplus honey stored in the best condition for producing first quality honey with the least expense.

However, this system, like others which work in the hands of their originators, cannot be used hit-or-miss, by rule of thumb and without careful attention to the principles of bee behavior behind it. That it can be used successfully is demonstrated by the picture of this beautiful apiary of four hundred highly producing colonies.

Never anywhere has "Observer" seen a more uniform or a more attractive yard. Uniformity of colonies, indeed, must be the result of the successful working of this system; and uniformity of colonies, other things equal, means high production.

Conditions Are Topsy-Turvy

In the summer of 1931 I mentioned that late blizzards in May played havoc with buds and blossoms in Colorado and states to the north and east. O. S. Bare, extension entomologist in Nebraska, reported the same conditions in that state.

Newspaper men in December, 1931, were bragging about the weather. Maple trees in Ohio were giving sap, strawberries ripening in Missouri, but that's not something to brag about; it's something to worry about.

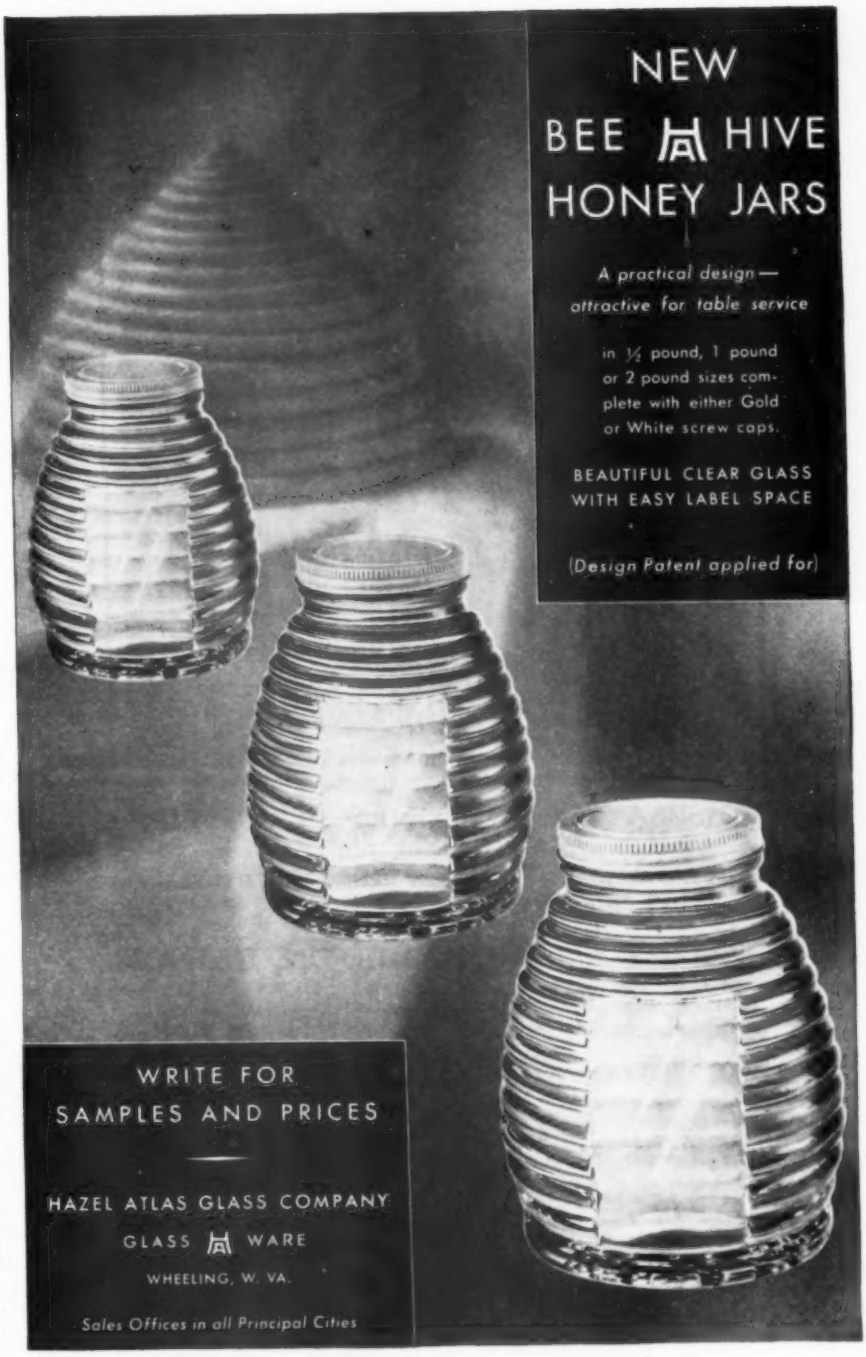
It is plain that if fruit buds intended for the summer of 1932 come out in the winter and are killed, we're in for trouble. Climatic conditions are topsy-turvy. Snow in Los Angeles for the first time in years, summer weather in Pennsylvania. I am not a calamity howler, but all of us must recognize the truth and protect our own interests wherever possible.

M. N. Dillon.

The Bee's Example

Why cannot capital and labor become as energetic as bees, by the cooperative route, just as the bee does in its life's activities? If that were done, what a splendid old world this would be—no unemployment, everybody working.

J. M. Dillon.



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FOR THE SEASON OF 1932 AT THE FOLLOWING PRICES

Special orchard package or early builder, composed of a three-frame nucleus, three additional pounds of bees with a select young queen introduced, for $3.75 each, any number. Two-pound packages with select young queen, one to nine, $2.25 each; ten or more, $2.00 each. Three-pound packages with select young queen, one to nine, $3.00 each; ten or more, $2.75 each. Four-pound packages with select young queen, one to nine, $3.75 each; ten or more, $3.50 each. Two-frame nucleus with select young queen, one to nine, $2.25 each; ten or more, $2.00 each. Three-frame nucleus with select young queen, one to nine, $3.00 each; ten or more, $2.75 each.

All bees are shipped on standard Hoffman frame of brood and honey. Prompt and efficient service, safe arrival guarantee, and a health certificate with each shipment. All loss will be immediately replaced upon receipt of bad order report signed by express agent. Shipping season starts April 1. Orders booked with 10 per cent down, balance at shipping time. Also ship combless packages, if wanted, at same price as comb packages. Address

J. L. GASPARD -:- HESSMER, LA.

A "Topping" Big Mess

By H. A. Insinger
Missouri

An undesirable thing about the top entrance came to my notice this last summer. Before leaving for a vacation, every super was put on the hives. On returning I found only a few bees flying and concluded the honeyflow was a flop. I didn't look until later—late enough to beat myself out of all kinds of smartweed honey.

The true state of affairs came to my attention when I happened to look through into one of the entrances. It was chockful of honey, and so was every other one. Of course I got busy extracting, but, oh, what a mess! All burred-up and gooey! Apparently it is difficult to keep the bees from building comb there.

It was found the queen was invariably in the brood chamber, next to the bottom board, of all of the colonies with top entrances. They were two- and three-story hives. Whether this was because of lower temperature, or because bees like to have their honey above them, I do not know. There was a sprinkling of brood in the upper body.

Send Your Institute Honey Donations to These Receivers

These individuals and firms have agreed to take in honey donated to the American Honey Institute, sending a check to Russell H. Kelty, treasurer of the American Honey Institute, East Lansing, Michigan, for the value of the honey at the market price, less the freight:

Honey Receivers

Allen Latham, Norwichtown, Conn.

Bee-Kist Products, Inc., 8272 Jefferson Street, Phoenix, Ariz.

A. G. Woodman Company, Grand Rapids, Mich.

Dadant & Sons, Hamilton, Ill.

James Gwin, Department of Markets, Madison, Wis.

Lothrop Nursery Company, Aberdeen, S. D.

T. W. Burleson, Waxahachie, Tex.

O. S. Bare, Extension Entomologist, College of Agriculture, Lincoln, Neb.

Sioux Honey Association, Sioux City, Iowa.

H. M. Krebs, Sacramento, Calif.

George C. Barton, Meriden, N. H.

Colorado Honey Producers' Association, Denver, Colo.

Above receiver nearest you is to be notified of the number of pounds you contemplate sending in before shipment is made.

Crop and Market Report

Compiled by M. G. Dadant

For our February crop and market report we asked reporters to answer the following questions:

1. How near is the crop sold?
2. Will it move in the next sixty days?
3. Is jobbing demand picking up?
4. Is retail demand better?

Percentage of Crop Sold

In the New England states and New York there seems to be a very large percentage of the honey crop sold, amounting to approximately 85 per cent on an average.

The southern Atlantic states do not seem to be so fortunate and there is probably not over 50 per cent sold in this section. In fact, the farther you go south the more difficulty there has been in selling honey, and we find in Florida and Georgia that a large percentage of the honey is still held on hand, probably not over 20 per cent being sold. The complaint is everywhere in that section that there is no money to buy and that honey will not move at all.

As we range westward in the southern states, the condition seems to be better and by the time Texas has been reached there is a considerable change. Texas reports a large majority of the good honey sold and the amber grades probably only a small minority yet to move.

In the central western states there is probably at least 60 to 75 per cent of the honey sold. There are, however, quite a large number of beekeepers who have no retail outlet for their honey who are complaining that almost all of it is left on hand. It seems to be a question of being able to find your own retail outlet or else take a very low price in a jobbing way.

Again as we go west conditions seem to be better. Iowa is in very good condition with probably 80 to 90 per cent sold, and the same condition exists practically over the entire western territory except in the extreme south portion, as New Mexico and Arizona still report considerable honey on hand.

When we reach the Northwest the states of Washington and Oregon still have a crop of practically 50 per cent on hand, but California seems to be well sold out, particularly in the southern section, except for some of the amber which is still left on hand.

In the Canadian provinces Ontario does not seem to be as fortunate as the western provinces in having disposed of its honey. In fact about 50 per cent of the honey is sold, whereas in the western provinces at least 90 per cent is out of the hands of the beekeepers, and jobbers calling every day for honey. This was probably largely through a reduction in prices on the part of the growers, but nevertheless still a good price is being paid and the beekeepers are rather optimistic for the coming season, although cutting costs everywhere.

Movement in Sixty Days

A majority of the reporters indicate that in sixty days there will be very little honey left on hand locally. This does not, however, refer to the southern Atlantic states nor the entire South, where it appears that honey is slower in movement and there will be considerable left over into the spring period. In fact Florida and Georgia and some of the other states seem very dubious as to whether half of the honey will be sold before the new crop starts. Again, the farther we go west the more optimism there is that the complete crop will be sold out in sixty days, or at least before the new crop comes on.

Arizona, Kansas and Washington are states which do not have any idea that the crop will be anywhere near sold in the next sixty days. On the whole, however, it would appear that a large majority of the honey still held on hand would be disposed of within the next ninety days at least and probably a better cleanup of the crop than there has been in several years.

Jobbing Demand

In the eastern states and in all of the southern states there does not seem to be any jobbing demand.

In fast there "ain't no such animal." However, in the West there does seem to be a very fair demand for jobbing lots of honey, although the prices range very low. White honey is now being offered at prices ranging from 5 cents to 5¾ cents, f. o. b. shipping point.

Perhaps the beekeepers who are the most unfortunate are the fairly large beekeepers in an isolated position, who are not in shape to ship car lots and who should be in a territory where the price should range a little better than in western sections. In the Central West, in many areas, there are individual beekeepers who are complaining loudly that this honey has not been sold chiefly because they do not seek retail outlets at all, but have always depended on getting rid of all of their honey in one lot or turning it over to somebody else to job. These people are suffering from lack of demand.

Retail Demand

In practically all instances the retail demand has been improving since Christmas time, particularly within the last ten days before this was written.

This is not true, however, in the southeastern states, where again the apathetic conditions still exist. There is no doubt but that honey is suffering less than many other commodities in ready sales, although there is apparent stagnancy in practically all sections on account of the lack of purchasing power. One beekeeper whom the writer met recently suggests a barter proposition with honey. He loads his car with honey whenever he goes any place and forces an exchange of honey for other commodities. He does not have his car filled with gasoline unless he can exchange honey for it, and he also expects to exchange honey for many other products. Perhaps we are just now in a condition where this barter and exchange proposition will work well, and no doubt it would at least for small quantities of honey. A man with a large volume, of course, could not expect to carry this out to any great extent.

The lowest we have heard of honey being offered is five pounds for 39 cents, in some of the chain stores in California. This is reported, however, by a beekeeper to be very poor honey, amber in grade and strong in flavor. The same beekeeper is getting more than double this price in his own trade and repeat orders for nice white honey, showing that he has developed a retail trade which will stay with him through thick and thin. Largely, the people who are suffering now are the ones who have not taken cognizance of their own retail trade and have no customers therefore to rely upon during conditions such as they are now.

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Buy and Sell All Grades Extracted Honey
References: 1st National Bank, R. G. Dun or Bradstreets Commercial Reports.

The BEEKEEPER'S EXCHANGE

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEES AND QUEENS

TESTED QUEENS—75 cents each. Send queens anywhere. Order now. D. W. Howell, Shellman, Ga.

THOSE fine packages, shipped on combs drawn from Dadant's wired foundation, will be ready. See advertisements July and August. Jes Dalton, Kenner, La.

PACKAGE BEES AND QUEENS—Write for prices. Jasper Knight, Hayneville, Ala.

WRITE for new low prices on mountain Caucasian bees and queens; also booklet on description and management. Bolling Bee Company, Bolling Ala.

WILL EXCHANGE package bees, nuclei or queens for bee supplies. Crenshaw County Apiaries, Rutledge, Ala.

HUNDREDS of three-pound packages. Pure Italians. Spring delivery. One pound of bees free with each package. Three-pound packages go at last season's two-pound prices. Write for circular and low price. The Gooch Apiaries, Farmersville, Texas.

CAROLINA QUEENS—Line bred, three-banded, leather-colored Italians. The best honey gatherers, hardy and prolific. All orders filled promptly. If any queen is not satisfactory, please return. Not ordinary queens, but as good as the best. Ready for shipment April 20. Select (one grade only), one to fifty, 60c each; fifty or more, 55c each. Carolina Bee Co., Kenansville, N. C.

CAUCASIANS AND CARNIOLANS—Very gentle, prolific, long-tongued, more dependable than Italians. Free papers describing both fully. Queens, packages and colonies. Albert Hann, Glen Gardner, N. J.

PACKAGE bees and queens in U. S. standard shipping cages at very low prices. Write to Thomson & Hodges, Anderson, Calif., or Coeur d'Alene, Idaho.

QUEENS reared late fall for early delivery. Spring queens, package bees ready March 20. Cheap. Will trade for white honey. Homer W. Richard, 1411 Champnolle, El Dorado, Ark.

SMITH'S superior bees and queens at bargain prices. Write at once for prices and particulars. We guarantee satisfaction or money back. N. B. Smith & Co., Calhoun, Ala.

PALMETTO quality queens. Watch March Journal for 1932 prices. C. G. Ellison, Belton, S. C.

FOUR three-pound nuclei equal (nearly) one colony in a cage. The price of four nuclei is? The price of a colony in a cage is $5.00. The express charge on a colony is a little less. But I'll sell you any kind of package you want. Usual guarantees. Dr. Stiles, P. O. Box 422, Houston, Texas.

GOLDEN Italian queens for 1932. The big, bright, hustling kind (the kind that get the honey). Price for April and May, 75c each; $60.00 per hundred. Write for prices on package bees and White Giant rabbits. E. F. Day, Honoraville, Ala.

LOWER PRICES on package bees and "Queens of Quality." It will pay you to get my figures. J. F. McVay, Jackson, Ala.

FOR SALE

FOR SALE—100 colonies of Italian bees, 200 comb honey supers, 100 extracting supers with drawn comb. All combs built from full sheets foundation. Will guarantee free from disease. The first reasonable offer takes them. Bert Gander, Bayard, Iowa.

FOR SALE—175 two-story colonies, on their stands; painted hives, full sheets wired foundation. Health certificate. L. L. Ferebee, Pineland, S. C.

ADMINISTRATOR'S SALE—500 colonies of bees, Caucasian strain, amply equipped for chunk and extracted honey. Clean. Colorado locations, excellent white honey district. George Miller, R. 1, Littleton, Colo.

FOR SALE—"Old bee books for sale." John F. Hawkins, Box 203, Chester, Pa.

FOR SALE—Near Albion, Neb., equipment for 500 two-story colonies. Part bees being wintered; balance will be supplied from Mississippi, four or five frames of brood for each colony, about May 1. Everything standard full-depth, ten-frame, mostly new last year. Buyer can equip with own choice of supers and go right ahead producing honey. No disease. Jensen's Apiaries, Crawford, Miss.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Sweet clover extracted honey; quality and body fine. Thomas Atkinson, Route 5, Omaha, Neb.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 West Huron St., Chicago, Ill.

STOLLER'S EXCELLENT quality clover honey, comb and extracted. Unexcelled. The Stoller Apiaries, Latty, O.

HONEY FOR SALE—Keep your customers supplied with honey. We can furnish white and light amber honey at attractive prices. Packed in 60-lb., 10-lb. or 5-lb. tins. Dadant & Sons, Hamilton, Illinois.

HOWDY'S HONEY—Best quality clover extracted, at reduced price. Howard Potter, Jr., Beekeeper, Ithaca, Mich.

FOR SALE—White clover comb and extracted in sixties. C. Holm, Genoa, Ill.

FOR SALE—Extracted sweet clover honey, 7c a pound F. O. B. Montgomery, Ala., and basswood-clover honey, 8c F. O. B. Menomonie, Wis. In 60-lb. cans, two to the case. M. C. Berry & Co., Box 697, Montgomery, Ala.

FOR SALE—White clover honey in sixties, 7c per pound. Joseph H. Hoehn, Ottoville, Ohio.

CAR or less white extracted sweet clover and alfalfa. George Seastream, Moorhead, Minn.

FINE clover honey, extracted. Case or ton. Write amount needed and get prices. L. G. Gartner, Rowan, Iowa.

LIGHT amber honey $8.00 per 120-pound case. New cans and cases. Sample 15c. Sylvester Legat, Spring Valley, Ill.

FOR SALE—No. 1 clover comb, $3.50 per case; No. 2 clover, $2.50. Buckwheat and fall comb, No. 1, $2.50; No. 2, $2.00 per case. On a 24-case shipment, 5% discount; 48 cases, 10% discount. For other prices, write H. G. Quirin, Bellevue, Ohio.

CLOVER EXTRACTED HONEY—Case or carload. Roy Littlefield, Exira, Iowa.

WHITE COMB HONEY—Extracted and chunk. Prices on request. One-pound sample, 15c. F. W. Summerfield, Grand Rapids, Ohio.

COMB HONEY—Write for prices. Joe Nafziger, Goodland, Ind.

FOR SALE—Fancy comb honey, white, in eight-case lots, $3.50 per case. N. B. Querin & Son, Bellevue, Ohio.

HONEY and maple syrup for sale, any quantity and size package, any time; freight paid 1000 miles. Comb and extracted; first run 100% pure maple syrup, also No. 2; honey and maple products as only Griswold makes them. Special circulars free. Griswold Honey Co., Madison, Ohio, U. S. A.

FOR SALE—Extracted clover honey in 60-pound new containers; graded. Write for quotations. Sample 10c. M. Larson & Son, Box 144, Gardner, Ill.

WHITE CLOVER EXTRACTED — Jessup Honey Farms, Rt. J., Carmel, Ind.

ONE-HALF (½) TON No. 1 white comb honey, 350 pounds No. 1 buckwheat comb honey, one ton No. 1 extracted white, one ton light amber extracted, one-half ton dark extracted. H. L. Case, 156 West Avenue, Canandaigua, N. Y.

EXTRACTED honey in 60-pound cans, light amber and amber. W. C. Moon, Henry, Ill.

CLOVER honey, $8.40 case; amber, $7.20. Edward Klein, Gurnee, Ill.

HONEY FOR SALE—Finest Nebraska sweet clover, in new sixties. One- to five-case lots 6½c, ton lots, 6c per pound, f. o. b. St. Edward, Neb. Jensen's Apiaries, Crawford, Miss.

HONEY AND BEESWAX WANTED

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—Comb honey. Will pay part cash and the balance in package bees and queens, 1932 delivery. M. C. Berry & Co., Box 697, Montgomery, Ala.

WANTED

WANTED—To buy, in Illinois, bees in either Modified Dadant or ten-frame hives. Also extracting supers for same. Edward Adam, Strawn, Ill.

WILL BUY ten or more colonies of bees if reasonable, not far from Chicago. A. Chikurov, 1801 W. North Ave., Chicago, Ill.

WANTED—Bids on the following: Lot 1. 2300 4x5x1⅜ plain sections, 200 pounds extra thin super foundation, 1400 section supers with holders, in fine condition and well painted, 400 shipping cases with glass. Lot 2. One 10-inch unused and unpacked foundation mill, perfect condition. Mrs. Anna R. Chadwick, Redlands, Calif.

WANTED—Experienced man to help care for my bees next summer. Give age and wages wanted. Mrs. Harvey Whitacre, Saratoga, Wyo.

WANTED—Young man with beekeeping experience. Apply to B. F. Smith, Jr., Apiaries, 1312 Ninth Ave., Helena, Mont.

WANTED—Bees to work on shares. Good sweet clover location. References furnished. Brookside Apiaries, Ruthton, Minn.

WANTED—400 colonies bees. Must be clean, strong and in ten-frame hives. Edward Klein, Gurnee, Ill.

PARTNER WANTED—Spray poison has practically cleaned me out. I have equipment for 400 colonies and would like to secure partnership with beekeeper that could use additional equipment. If interested, write for complete information. L. L. Lieb, Greenacres, Wash.

POSITION WANTED

WORK wanted with large producer, by married man. Best of references; ten years' experience. Prefer northwestern states. Reasonable. T. W. Robinson, Graham, Wash.

MARRIED man wants job on bee farm the year round. Experienced. Paul E. Carlsen, Gardner, Ill.

SUPPLIES

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Systema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

FOR SALE — We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

SAVE MONEY with a Rietsche foundation press. John Stegedirk, Hubbard, Iowa.

STANDARD Hoffman frames, manufactured from Idaho white pine, $30.00 per thousand. Prices on other supplies to match. Inquire Thomson Honey Co., Coeur d'Alene, Idaho.

FOR SALE—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices. Hamilton Bee Supply Co., Almont, Mich.

MISCELLANEOUS

MARBLEBOARD BINDER—For back copies of the American Bee Journal. Will hold two years. Keeps your magazines in shape for ready reference. Price only 75c, postpaid. American Bee Journal, Hamilton, Ill.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

PLANS FOR POULTRY HOUSES—150 illustrations. Secret of getting winter eggs. You need this book. Write for free offer and sample copy of Inland Poultry Journal, 523 Holliday Bldg., Indianapolis, Ind.

AUTOMATIC SWARM TRAPPER—Practical, efficient. Literature free. Vikla Manufacturing Co., Lonsdale, Minn.

GROW VITEX TREES for beauty and bees. Twelve- to 24-inch trees, 30c each; twenty-five or more at 25c each; 24- to 36-inch trees, 50c each; twenty-five or more, 40c each, all prepaid. Seed at $1.50 per ounce. Joe Stallsmith, Galena, Kansas.

PLANT VITEX THIS SPRING—10% deposit books your order. Don't lose another season; time past is money lost. 12- to 24-inch trees, 50c each; thirty-one or more, 30c each; 25- to 36-inch trees, 60c each; thirty-one or more, 40c each. Vitex seed, $1.50 per ounce; trial packet, 200 seeds, 25c, all prepaid. Charles Mottet, Webb City, Mo.

TO INCREASE honey crop two-fifths, write me. Delbert E. Lhommedieu, Colo, Iowa.

WILL TRADE 160 acres valley land in Oregon and cash for bees in central states. Box A. M. B., American Bee Journal, Hamilton, Ill.

From the Little Blue Kitchen

(Continued from page 67)

she makes many uses of the honey distilled by her bees from the nearby garden flowers and the bit-further-away clover fields.

In the letter sent Honey Lady this farm friend enclosed several "tried and true" honey recipes with the avowed purpose of contributing something to the Blue Kitchen. One of these recipes made appeal and has been proved in the Blue Kitchen "lab" to be every bit as good as the friend-in-need said it was. Therefore, believing in passing along all real blessings, Honey Lady is publishing it here.

"Howell Honey Cake"

(It is a hard cake)

6 pounds flour
3 pounds honey
1½ pounds sugar
1½ pounds butter
6 eggs
½ ounce saleratus
Ginger to suit taste

Directions—Have flour in a pan or tray. Pack a cavity in the center. Beat the honey and yolks of the eggs together well. Beat the butter and sugar to a cream and put into the cavity in the flour; then add the honey and yolks of the eggs. Mix well with the hand, adding a little at a time during the mixing the half ounce saleratus dissolved in boiling water until it is all in. Add the ginger and finally the whites of the six eggs, well beaten. Mix well with the hand to a smooth dough. Divide the dough into seven equal parts and roll out like gingerbread. Bake in ordinary square pans made for pies from 10x14 tin.

After putting into the pans, mark off the top in half-inch strips with something sharp. Bake an hour in a moderate oven. Be careful not to burn, but bake well. Dissolve sugar to glaze over top of cake.

To keep cake, stand on end in a tin can or stone crock (crock is the best, according to Honey Lady's experience). Stand the cakes up so the flat sides will not touch each other. Cover tight. Keep in a cool place. Don't use till three months old at least. The cake improves with age and will keep good as long as desired.

The lady who sent this added something which Honey Lady finds to be true, namely: "I find any cake sweetened with honey does not dry out like sugar or molasses cake, and that age improves or develops the honey flavor."

In the January Blue Kitchen department Honey Lady called attention to the fact that when one is qui vive for information on any subject, facts concerning it seem to fairly jump out at one and say "Here I am; use me!" So, while the Howell cake was aging, various whispers about the efficacy of honey in keeping cakes soft or moist for a long time were heard. One day, for instance, when having tea with a friend, Honey Lady asked where her hostess had obtained the delicious cakes being served. The name of a Springfield, Ohio, baker was mentioned and the hostess answered: "We buy all our cakes from him. You know he uses honey to sweeten all his pastry, and it is perfectly astonishing how long the cake bought there keeps fresh and moist." "Thanks," said Honey Lady, making a mental note.

When to Add Honey to Batter

The question has been asked Honey Lady by cooks who have been substituting, or using on general principles, honey in cake or other recipes, just when or how to add the honey for best results as to smoothness of batter.

Honey Lady has found that a very good way when butter and honey are used is to mix or cream the honey and butter together and add it then as one of the liquid ingredients after the dry ones have been blent. If butter is not included, honey can be added to any shortening or can be mixed effectively with the milk to be used. It is wise to remember also, as has been heretofore mentioned in this department, that it requires only about one-third as much honey as cane sugar in filling a recipe where one is substituting the one for the other.

When Writing Advertisers Mention The American Bee Journal

PACKAGE BEES
NUCLEI AND QUEENS
Get my prices—
You will be surprised
W. H. MOSES
Lane City - - - Texas

The FINEST 3-Banded ITALIAN QUEENS and PACKAGE BEES
Hardy, Prolific, Gentle, and Hustlers.
We guarantee safe arrival, full weight and the right price.
Send for circular
J.W. DiLULLO, Anderson, Calif.

That "Chewy" Center
Calls the Customer Back
Dadant's Surplus Foundation Is Good

GET RUNNING'S BEES AND GET HONEY —THEY SATISFY
PACKAGES AND NUCLEI
The kind WE use in our extensive Michigan Apiaries where WE produe honey by the carload. ALL ITALIAN STOCK
Service guaranteed. Stock bred for honey geting and gentleness. PRICES RIGHT. Let us name you prices on any quantity.
DAVID RUNNING
Filion, Mich. - or - Sumterville, Ala.

Get the "Gentlest Bees Under the Sun" to Mother Next Year's Producing Colonies.
Mountain gray Caucasians from the best imported breeders. Try them. Gentle, long lived, hardy, good gatherers.
Our circular Free for the asking.
PRICES
One queen, $1.00; one dozen, $10.00
Caucasian Bee Company
REPTON, ALABAMA

BEES AND QUEENS GALORE
We are situated on main line of railway that connects with all the main lines of the North and West, insuring your bees to reach you on time and in nice shape. We do not have a single dissatisfied customer that we know of. Will have several thousand pounds of bees, also several thousand queens, for April and May delivery. Plenty of efficient help to get them to you on time.
PRICES IN U. S. A.
2-lb. Package with Queen $2.25
3-lb. Package with Queen 3.00
Queens, 60 cents each
Canadian shipments 10 per cent more than above prices
SHAW & HOMAN, Shannon, Miss.

BIG LEGHORN CHICKS

"Kerlin-Quality"—World's Great Money Makers—Trapnested breeders. Contest winners. Healthy—Mountain bred. **Low 1932 Prices. Big discount** on early orders. **Free feed** with chick order. Valuable 40 page Poultry Book free.
Kerlin's Poultry Farm, 212 Walnut Road, Centre Hall, Pa.

SELLING HELPS for Your Honey
Beekeepers are learning to sell honey locally, thus avoiding the glutted central markets. Our honey folders are ideal in this respect, and for distribution at roadside stands.
Honey Leaflet

Four pages. Cover in four colors. Explains fully but briefly the value of honey, its uses, and gives a few recipes. Name and address of beekeeper with honey prices if desired. Fits ordinary envelope. Sample free.
Prices postpaid with name and address, etc.:
100, $2.00; 250, $4.25;
500, $7.50· 1000, $11.50.
Each additional 1000, $9.75.
Eight Page Honey Folder
"Sweetheart of the Flowers" Short description of what honey is, how produced, harvested. How to keep it, and other data of general interest. A full page of honey recipes included.
Prices
100 ... $1.00 250 ... $2.50
500 ... 4.50 1000 ... 8.50
Extra for printing your name and address: 250 or less, 95c; 500, $1.25; 1,000, $1.90
American Bee Journal, Hamilton, Illinois

Strawberry Plants
Strawberries are a desirable source of added income and a pleasing dish for the home table. To enable us to supply plants for our customers, we have contracted with Melvin Pellett to grow them for us at his Iowa gardens.
The Dunlap is the most popular variety grown in the Middle West. It is perfect flowering, a vigorous grower, a free plant maker, and produces an abundance of fine fruit.
We offer fresh dug, vigorous young plants, shipped direct to your address at planting time in early spring.
100 postpaid $1.25
200 postpaid 2.00
1000 by express collect ... 6.00
Address all orders to
Dadant & Sons
Hamilton, Ill.

BRIGHT ITALIAN BEES AND QUEENS
Our queens are bred from large, gentle, golden Italian stock, as good as the best. They are raised scientifically and with greatest care. Consequently our customers never complain of supersedure—the thing that costs package buyers so much.
Queens are caught, packages filled and shipped the same day from New Orleans direct. Our cage is light. Satisfied customers in 33 states praise gentleness, prolificness, honey-gathering qualities, and our business methods.
Write for price list and testimonials
Stevensons' Apiaries, Westwego, La.

Package Bees
NUCLEI and QUEENS
For April and May Deliveries

Better Bees and Better .. Prices ..
Let us quote you.
Crowville Apiaries
Winnsboro, La.

When Writing Advertisers Mention The American Bee Journal

Red Stick Apiaries

PACKAGES AND NUCLEI

Our cages are light and constructed to meet the recommendations of the Southern Louisiana State Laboratory, Department of Entomology. A state certificate attesting our apiaries free from brood disease is sent with each consignment of package bees.

	1-50	50 up
2-lb. pkg. with queen	$2.00	$1.90
3-lb. pkg. with queen	2.75	2.50
2 frs. nuclei	$2.50	$2.25
3 frs. nuclei	3.25	3.00

5-lb. Orchard Package $4.50

SELECT QUEENS 70c

Large Apiaries. Low Prices. Responsibility

Post Office : : Montegut, La.

Telegraph Houma, La.

Koehnen's

PACKAGE BEES

WITH OUR

QUALITY ITALIAN QUEENS

New light weight cages, prompt delivery, safe arrival and satisfaction guaranteed. Reference: Bank of America, Chico.

Send postal for new low prices.

Koehnen Apiaries

Glenn, California

STANDARD GARDEN TRACTOR

Plows Seeds Cultivates Mows Hay and Lawns

A Powerful Gas Tractor for Small Farms, Gardners, Florists, Nurseries, Fruit Growers & Poultrymen

AMPLE POWER

Handles Field & Truck Crop Tools—Lawn and Hay Mowing

EASY TERMS

Runs Belt Machines, pumps, saws. High Clearance—Enclosed Gears.

CATALOG FREE

Write Today, for Illustrated Catalog and Easy Payment Plan.

Walk or Ride

STANDARD ENGINE CO.

4016 Como Ave., Minneapolis, Minnesota

Nut Tree Plants

Nut Tree Nursery. Black Walnuts, [standard and also promising new varieties]; Chestnut hybrids; Hickory-pecan hybrids. Trees carefully grown, properly dug, and securely packed. Graft wood of most varieties. Write for descriptive list.

E. A. Riehl Farm :- Godfrey, Ill.

THREE-BAND ITALIAN QUEENS AND PACKAGE BEES

One to ten two-pound packages with queens, $2.50 each; ten to twenty-five, $2.25 each. Three-pound packages 50c more each. Queens, 60c each. Satisfaction assured.

D. C. JACKSON, FUNSTON, GA.

"I Didn't Get Much Honey —But Here's My Check"

A. L. Moberg,
Brookings, S. D.

"Here is my check—

for $4.56 for the Institute. I didn't get much honey this year as the season was too dry. About three tons of comb honey, or near that. Not enough beekeepers are getting behind the Institute. Several hundred could and should support it, right from this state, and I wonder *what is the matter with them?"*

Will You Help Decide the Future of the Institute?

There is now no question about the soundness and the effectiveness of the way in which American Honey Institute gets behind your honey. Letters from beekeepers, associations, honey distributors and honey users, from practically every state, prove this value

But the work cannot go on without just the kind of help Mr. Moberg gives. The time has come to decide the future of the Institute. *It will be decided* at the annual meeting of American Honey Institute at Columbus, Ohio, January 25. If you expect the Institute to continue to work for you, make good use of this coupon now so the directors will say—*go ahead.*

Basis of Support – Honey or Money.
Honey equal to one-half of one per cent of your crop – Money, $1.00 per ton – either way, take your choice, but use the coupon now. **(Send honey to any of list of receivers on page 78)**

AMERICAN HONEY INSTITUTE,
225 WIMMER BUILDING,
INDIANAPOLIS, INDIANA.

I pledge my support to the work of the American Honey Institute for 1932. Enclosed is my check for _____ herewith. I have sent _____ pounds of honey to _____ who will send value in money to you. (Name receiver.)

Name _____

Address _____

(Mail to American Honey Institute, 225 Wimmer Bldg., Indianapolis)

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

It is January and the newspapers tell of zero weather in the Northwest and snow in the Middle West, but here in Florida, where I am attending a series of local bee meetings, it seems like summer. Flowers are in bloom and the bees are gathering pollen. Brood rearing is well started and the beekeepers are looking forward to the active season.

It is no wonder that folks who can afford it like to spend their winters in Florida. To be able to be outside in one's shirt sleeves enjoying the sunshine, instead of being cooped up inside, would justify some sacrifice.

Waxmoths

In our short northern summers we find the waxmoth to be quite a problem when we have occasion to store combs that are needed. Weak colonies likewise are soon destroyed if unwatched. However, our problem is small, indeed, in comparison to that of the Florida beekeeper, where the bees are active all the year. The main honeyflows, here as elsewhere, are short and the care of extracting combs over a long period of warm weather, with no honey coming in, is a real job. We of the North hardly realize how much the winters help in controlling the increase of insect pests.

Honey Yields

At first thought one would expect that the yield of surplus honey would be much larger in the South, where there is a longer active season. The opposite is the case. In the North our season is concentrated into a much shorter time and everything is speeded up accordingly. They do have some very heavy honeyflows at times, in Florida, but, due to the fact that brood rearing is almost continuous, much more honey is consumed in support of colony activities. Accordingly, less is available to the beekeeper as surplus.

Much is said here about the quality of honey, since in some neighborhoods most of the crop is dark in color. Some of this dark honey is of good flavor and one does not wonder that the beekeeper feels that there is discrimination when he is compelled to accept a low price. Florida produces much honey of fine quality, such as tupelo, gallberry and orange. Beekeepers report that there is a great variation in the color and quality of their honey from year to year. This is due, in part, to the great variety of sources, but they hold that the same plant gives honey of different quality at different times when there is a variation in weather conditions.

The Flora

The variety of plants in a Florida swamp is bewildering. Yesterday we visited Wakulla Springs, where the original forest and swamp flora is preserved. Every visitor to Florida who loves nature in the wild should visit this spot. The big spring and stream below are closed to fishing, and, by taking a ride in a glass-bottom boat, one can see more fish of a greater variety than in any place which I have ever visited. There is also a great variety of bird life, such as herons, ducks, grebes, vultures, and numerous others.

The thing of most interest to a bee man is the great variety of honey plants. The trees are overgrown with vines of varied kinds and there are many trees on which the bees work. The great magnolias must be a wonderful sight when they put forth their immense blossoms. The tupelo is famous for its yield of honey, and several kinds of bay trees also grow there. One could spend weeks of time in getting acquainted with the honey plants in one of the Florida swamps.

In the towns the Camellia Japonica is one of the most beautiful ornamental trees. It is now in bloom, and the wax-like flowers look like large roses. The bloom is very profuse and lasts for weeks. We have stopped to admire several of these trees and always find the flowers visited by honeybees, eagerly gathering the abundant pollen.

Probably no state outside of California has such a great variety of plants which yield something for the bees as has Florida. This great variety makes something of a problem to the beekeepers in marketing their honey, because it is difficult to offer a large amount of uniform quality.

Marketing

Just now, when markets are slow and prices low, we hear a great deal about the marketing problem. In some localities we find much honey still unsold, while in others the crop has been moved at low prices. In west Florida, where more tupelo honey is produced than anywhere else, it would seem they should be able to secure a premium for their honey. The slow granulation of tupelo honey makes it especially desirable for markets where extracted honey is put up in glass. So many object to granulation that a honey of this kind seems very attractive for packing in small containers for the retail trade.

Florida commercial beekeepers depend to a large extent on the distant markets, and the long haul and high transportation costs are felt keenly at times like these, when prices are low.

The tourist trade is one of the most important sources of income for the state. Thousands of winter visitors come to spend a few weeks away from cold weather. I am a little surprised to find so few roadside stands where Florida honey is offered for sale. Oranges and grapefruit are sold in that way very generally. It would seem that more stands might very well include honey and that such an outlet would find many new customers, who would continue to order honey by mail after they have returned home.

Wintering

Florida has no winter problem as we know it in the North. The beekeeper has little occasion to think of protecting his bees from the cold. His winter problem is rather one of conserving his bees and protecting his combs from moths. Where there are long periods with no honey in the field, with the weather warm enough to permit the bees to fly every day, the force becomes greatly weakened. In parts of Florida there is something in the field most of the time. In the best tupelo sections, however, there is a long period when little pollen is available. Here it is common practice to move the bees to distant pastures where pollen is plentiful and bring them back again for the honeyflow.

Visiting

The Southern States Conference will bring many beekeepers to Florida for the first time and there will be much sightseeing and visiting along the way. Bee men find so much in common wherever they are that one can always find a welcome. With a local bee man for a guide, one can get valuable information wherever he stops. To those from other states there will be much that is new — new plants, new fruits, new customs, strange trees, strange birds, unfamiliar sights and sounds, and so many things interesting that one wants to stay all winter.

FRANK C. PELLETT.